

Exhibit 3

(Filed Under Seal)

**UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK**

HIGHLY CONFIDENTIAL: SUBJECT TO PROTECTIVE ORDER

IN RE NAMENDA DIRECT PURCHASER
ANTITRUST LITIGATION

Civil Action No. 1:15-CV-07488

CLASS ACTION

AMENDED EXPERT REPLY REPORT

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November 9, 2017

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I. Summary of Opinions, Assignment, and Conclusions

1. I listed my background and qualifications in the Lamb Report¹ filed in this matter on September 20, 2017. An updated copy of my C.V., including a list of the matters in which I have submitted expert testimony in the past four years, is attached to this report as Appendix A. I was also deposed by Counsel for Defendants on October 6, 2017.²

A. Summary of Opinions

2. In the Lamb Report, I concluded that all, or nearly all, proposed Class members were injured by Defendants' anticompetitive agreement with Mylan in that they paid higher prices for brand-name Namenda IR, Namenda XR, and/or generic Namenda IR than they otherwise would have had generic competition started sooner.³ This is because they would have purchased (or purchased more) generic Namenda IR at prices below branded Namenda IR and Namenda XR and/or would have purchased generic Namenda IR at lower prices.

3. I also concluded that all, or nearly all, proposed Class members who purchased at least Namenda IR and/or Namenda XR were injured by Defendants' anticompetitive Hard Switch strategy in that they paid higher prices for Namenda XR than they otherwise would have for generic Namenda IR, and they would have purchased the less expensive generic (or more of it) in place of the more expensive branded Namenda. Finally, I determined that total aggregate, class-wide damages arising from Defendants' challenged conduct are between \$6.09 billion and \$6.93 billion under the No Reverse-Payment But-For World (which includes accounting for the Hard Switch), and between \$776 million and \$814 million under the No Hard Switch But-For World (without accounting for the reverse-payment scheme).

¹ I filed an expert report in this matter on September 15, 2017, and an amended expert report on September 20, 2017. Throughout the remainder of this report, I refer to the amended expert report as the "Lamb Report."

² Deposition of Russell Lamb, October 6, 2017 (hereafter "Lamb Deposition").

³ Throughout the remainder of this report, I refer to brand-name Namenda IR as "Namenda IR," to brand-name Namenda XR as "Namenda XR," and to generic Namenda IR as "generic Namenda IR." I refer to all three products collectively as "memantine hydrochloride."

B. Assignment

4. Since preparing the Lamb Report, I was asked by Counsel for Plaintiffs in this matter to review the reports prepared by Dr. Lona Fowdur (“Fowdur Report”)⁴ and Dr. Pierre-Yves Cremieux (“Cremieux Report”)⁵ submitted in this matter on October 9, 2017 (collectively, “Defendants’ Economists”). I also reviewed Defendants’ Economists’ deposition transcripts.⁶ In particular, I was asked to consider Dr. Fowdur’s and Dr. Cremieux’s criticisms of the Lamb Report in order to determine whether anything in their reports causes me to change my conclusions. Finally, I was asked to prepare this Expert Reply Report to present my findings regarding the opinions expressed by Dr. Fowdur and Dr. Cremieux. A complete list of the materials I relied upon in forming my opinions, in addition to those cited in the Lamb Report, is contained in Appendix B.

C. Conclusions

5. Based on my review of the Fowdur and Cremieux Reports and further analyses and research into the market for memantine hydrochloride, as well as my training and experience in economics, I have reaffirmed the conclusions set forth in the Lamb Report and reiterated above. Nothing in the Cremieux Report or the Fowdur Report has caused me to change these opinions. As I discuss in greater detail below, Defendants’ Economists’ criticisms are (1) wrong as a matter of economics; (2) based on flawed and inappropriate analyses; or (3) irrelevant to my conclusions regarding the injury suffered by members of the proposed Class as a result of Defendants’ misconduct as challenged by Plaintiffs. Specifically, I have concluded the following:

- a. Defendants’ Economists fail to offer any valid criticisms based on sound economic analysis of my analysis of damages under the No Reverse-Payment But-For World. As I discuss below, the few criticisms Defendants’ Economists do offer are based on flawed or unreliable analyses. Contrary to Defendants’ Economists’ claims, I correctly modeled market dynamics under the No Reverse-

⁴ Expert Report of Lona Fowdur, Ph.D., October 9, 2017 (hereafter “Fowdur Report”).

⁵ Expert Report of Pierre-Yves Cremieux, October 9, 2017 (hereafter “Cremieux Report”).

⁶ Deposition of Pierre-Yves Cremieux, October 20, 2017 (hereafter “Cremieux Deposition”); Deposition of Lona Fowdur, October 20, 2017 (hereafter “Fowdur Deposition”).

Payment But-For World, including but-for generic prices, the generic penetration rate, and the dates when Namenda XR and generic Namenda IR would have entered the market.

- b. Defendants' Economists' criticisms of my analysis of damages under the No Hard Switch But-For World are wrong as a matter of economics as they are based on inappropriate and irrelevant analyses that disregard the economics of the pharmaceutical supply chain and the facts of the case in this matter.
 - i. Defendants' Economists improperly analyze the behavior of patients who are not direct purchasers and are therefore not part of the proposed Class. Defendants' Economists attempt to shift the focus of the Hard Switch to the behavior of individual patients, but, as Forest itself has stated, "Forest deals with wholesalers, not patients."⁷ Much of the Hard Switch focused on changing *physician* behavior, and the effect of the Hard Switch conduct persisted after the December 15, 2014 preliminary injunction. Further, Defendants' conduct had market-wide effects on wholesalers and other direct purchasers; effects that can be reliably and more appropriately measured using market-wide data rather than patient data. Thus, much of the analysis proffered by Defendants' Economists is not relevant to the question of whether proposed Class members who are direct purchasers were injured.
 - ii. Defendants' Economists restrict their analysis of the Hard Switch to an inappropriately narrow time period that appears to reflect a legal opinion rather than the application of any sound economic analysis. That is, in addition to analyzing the wrong level of the supply chain, Defendants' Economists fail to recognize that proposed Class members' purchases of memantine hydrochloride are driven by anticipated overall downstream market demand arising from physician prescribing patterns and ultimate sales of memantine hydrochloride at retail. This means that the timing and

⁷ Cremieux Deposition at Exhibit 11 (United States Court of Appeals for the Second Circuit, State of New York v. Actavis and Forest Laboratories, Reply Brief of Defendants-Appellants (Redacted), February 23, 2015, p. 13).

pattern of any purported patient switching patterns is irrelevant to an analysis of injury because physician behavior was affected outside of the damages period analyzed by Defendants' Economists.

- c. While I maintain that the analyses I presented in the Lamb Report are economically and econometrically sound, consistent with economic and econometric research, and appropriately relied upon in the calculation of class-wide damages, I demonstrate below that, even taking into account certain of Defendants' Economists' flawed criticisms, although I do not credit them and do not believe they are valid, the results of my alternative damages analysis still demonstrate positive damages. Based on my alternative damages analysis, I have estimated total damages related to the No Reverse-Payment But-For World scenario to be between \$3.52 billion and \$6.52 billion, and total damages related to the No Hard Switch But-For World scenario to be between \$659 million and \$695 million.

II. Defendants' Economists' Analysis of the No Reverse-Payment But-For World is Flawed

6. In the Lamb Report, I discussed the proposed Class in this matter as well as the two separate but-for scenarios I was asked to analyze.⁸ In the No Reverse-Payment But-for World, I assumed that four generic manufacturers would enter the market in June 2012 (or, in the alternative, on November 2, 2012),⁹ and that Forest would launch Namenda XR twelve months prior to generic entry (in June 2011 or on November 2, 2011). I further assumed that Forest would not engage in the challenged Hard Switch conduct, and therefore Namenda XR's market share would be lower than the maximum it achieved in the actual world.¹⁰ I calculated the damages suffered by proposed Class members from Defendants' challenged conduct under the

⁸ Lamb Report at ¶¶6-9. Dr. Cremieux agrees with me that it is appropriate to analyze two but-for worlds in assessing Plaintiffs' claims here. See Cremieux Report at ¶8.

⁹ Note that I could apply my same methodology for calculating damages under a but-for world where generic entry happened at any date prior to actual generic entry in July 2015.

¹⁰ Lamb Report at ¶135.

No Reverse-Payment But-For World in the Lamb Report as ranging between \$6.09 billion and \$6.93 billion.¹¹ Based on my review of Dr. Cremieux's and Dr. Fowdur's criticisms of my analysis, I have determined that their criticisms apply primarily to the analysis of the No Hard Switch But-For World, and these criticisms are either irrelevant or flawed as a matter of economics. Further, where they have criticized certain parts of the analyses of the No Reverse-Payment But-for World, their criticisms are flawed as a matter of economics. I discuss the faults in Defendants' Economists' limited criticisms of my damages analysis under the No Reverse-Payment But-For World below. Further, setting aside the flaws in Defendants' Economists' criticisms, I demonstrate in Section IV below that, even accounting for these flawed criticisms, my analysis still shows positive damages suffered by proposed Class members under the No Reverse-Payment But-For World.

A. I appropriately modeled but-for generic prices and the generic penetration rate in my analysis of the No Reverse-Payment But-For World

7. I noted in the Lamb Report and at my deposition that I was instructed by Counsel to assume that generic entry under the No Reverse Payment But-for World would have occurred in June 2012 (or, in the alternative, in November 2012).¹² Further, I was instructed by Counsel to assume that four generic manufacturers – Mylan, Dr. Reddy's, Sun, and Amneal – would have entered the market initially.

8. As I explained in the Lamb Report, published economic research demonstrates that the number of generic competitors can impact both the price and market share achieved by generics.¹³ However, this effect is not linear and the importance of each additional competitor declines as the number of competitors in the market increases. Specifically, I discussed a study by Berndt, Mortimer, Bhattacharjya, Parece, and Tuttle in which the authors concluded that, for up to four or five generic competitors, an increase in the number of available generics leads to

¹¹ Lamb Report at ¶¶13, 141, 161.

¹² Lamb Report at ¶¶8, 13; Lamb Deposition at 212:10-214:24, 223:7-20.

¹³ Lamb Report at ¶¶68-73.

lower generic drug prices relative to brand-name prices and higher generic market share.¹⁴ In other words, after the fourth or fifth generic equivalent enters the market, the effect of additional generics on price and market share is relatively “negligible.”¹⁵ Further, “[a]ny changes in the long-run number of generics are unlikely to affect generic price and share for the many drugs with more than four or five generic entrants.”¹⁶ This means that my use of the actual world, where there were six generic entrants in the first wave of generic entry in July 2015, is a reasonable proxy for the but-for world where there would have been four entrants. That is why even those entities that purchased only the generic were injured in this case. Had generic entry occurred years earlier, the price of generic memantine hydrochloride would have declined, and prices after July 2015 would have been lower than they were such that these purchasers were overcharged on their purchases of generic Namenda IR.

9. I discussed in the Lamb Report and at my deposition the methodology I used to estimate but-for generic prices.¹⁷ I also discussed the substantial literature which concludes that additional generics have little to no effect on price after the fourth generic is in the market.¹⁸ That is, the studies referenced in the Lamb Report and above show that there is no material difference in the generic price and generic market share achieved when additional generic manufacturers enter a market where four or five generic manufacturers already exist. Despite this, Dr. Fowdur and Dr. Cremieux make incorrect assertions concerning the effect of multiple generics on price in the market. Specifically, Dr. Cremieux and Dr. Fowdur criticize my damages model under the No Reverse-Payment But-For World for assuming that four generic manufacturers would have entered in the but-for world while using the experience in the actual world where six generic manufacturers entered the market to calculate the but-for generic price.¹⁹ Dr. Fowdur claims that this “can lead to an overstatement of damages because with four competitors prices are likely higher than with six.”²⁰ But her argument ignores the evidence I

¹⁴ Ernst Berndt, Richard Mortimer, Ashoke Bhattacharjya, Andrew Parece and Edward Tuttle, “Authorized Generic Drugs, Price Competition, and Consumer’s Welfare,” *Health Affairs*, Vol. 26, No. 3, 2007, 790-799 (hereafter “Berndt et al.”) at p. 792.

¹⁵ Berndt et al., at p. 792.

¹⁶ Berndt, et al., at p. 795.

¹⁷ Lamb Report at ¶¶126, 140; Lamb Deposition at 212:10-214:24.

¹⁸ Lamb Report at ¶72.

¹⁹ Cremieux Report at ¶¶96-97; Fowdur Report at ¶¶14, 89.

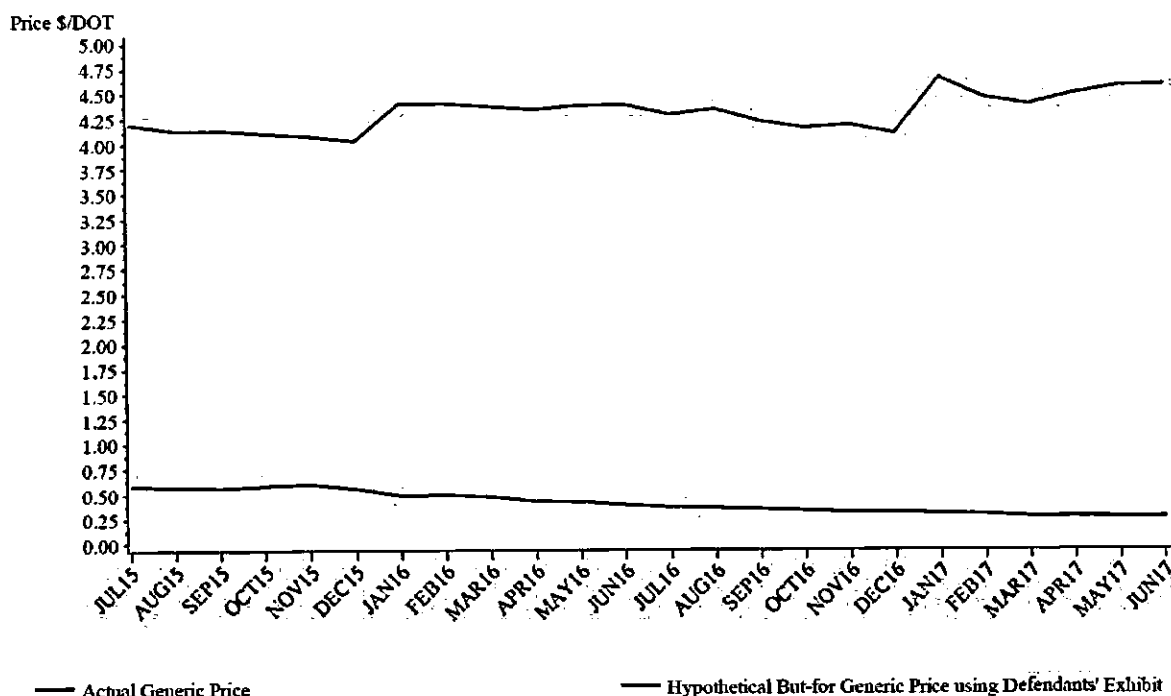
²⁰ Fowdur Report at ¶89.

discussed in the Lamb Report and above demonstrating that the fifth or sixth entrant has a negligible effect and, therefore, my use of the actual world, where there were six generic entrants in the first wave of generic entry in July 2015, is a reasonable proxy for the but-for world where there would have been four entrants. Further, even if Defendants' Economists were correct that but-for generic prices would have been higher if four, rather than six, generic manufacturers entered the market, I demonstrate below that adjusting the generic price as they suggest does not change my finding that proposed Class members suffered positive damages as a result of the reverse payment scheme.

10. To demonstrate the absurdity of Defendants' Economists' argument, I used the document shown to me during my deposition, which shows the *average* relative ratio of the generic to brand price based on the number of generic manufacturers in the market based on a survey of research.²¹ For a market with four generic manufacturers, the document indicates that the generic price would be 39 percent of the brand price. Therefore, I applied that percentage to the brand-name Namenda IR price to calculate a but-for generic Namenda IR price. Figure 1 below shows the results of this analysis. As the figure shows, under this assumption, the hypothetical but-for generic Namenda IR price is, on average, over nine times *higher* than the *actual* generic Namenda IR price. It is unrealistic that under this assumption that the but-for generic price would be nine-times *higher* than the actual generic price. Therefore, it is not reasonable to assume that the hypothetical but-for generic price would be 39 percent of the brand price in the Namenda market. I discuss below an adjustment which may be made to calculate a hypothetical but-for generic price using the document discussed here. As I show below, if I adjust the hypothetical but-for generic Namenda IR price to account for four generic manufacturers being in the market using both information from this source and information from the actual sales of generic and brand-name Namenda IR, I still find that the proposed Class members suffered positive damages as a result of the reverse payment scheme.

²¹ Lamb Deposition at 219:22 – 220:1. FDA, "Generic Competition and Drug Prices," March 13, 2010, Available at <https://www.fda.gov/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm129385.htm>.

Figure 1
Actual and Hypothetical But-for Generic Price



Source: NSP Data and FDA, "Generic Competition and Drug Prices," March 13, 2016, Available at <https://www.fda.gov/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm129385.htm>.

11. In addition, given the price-reducing effects of inter-generic competition, I concluded that all purchasers of generic Namenda IR were injured due to the misconduct challenged in this case.²² In fact, the experience with generic Namenda IR itself demonstrates the ability of inter-generic competition to drive prices lower.²³ For example, the number of generic manufacturers

²² This is true for the one proposed Class member (DMS) Dr. Cremieux identifies as having not bought any memantine hydrochloride products prior to generic entry. See Cremieux Report at ¶21.

²³ This is consistent with the forecast documents I have reviewed in this matter. For instance, one Lupin forecast shows the Lupin Suggested Wholesale Price (SWP) as a percent of the brand price decreases from 1.5% to .61% over 12 years even though there are the same number of generic marketers on the market (see LPI-NMDA-00000001); another Lupin forecast shows the generic acquisition wholesale price percent of brand price decreasing from 2016-2019 under three different scenarios where five, six, or eight manufacturers are in the market (see LPI-NMDA-00004967); one Sun forecast shows that Sun projected discount off the Brand Wholesale Acquisition Cost (BWAC) would increase each year it was in the market even from Year 2 to Year 3 when the number of 'players' is constant at 13 (see SUN0010760); an Orchid Pharma forecast shows the net price dropping from 2015 – 2017 but assumes that 9 filers will enter the market by October 2015 (see ORGENUS0005405).

in the market was stable at six from July 2015 to September 2015 while the price of generic Namenda IR declined 3 percent.

12. Moreover, a large number of proposed Class members (27) purchased both brand-name Namenda IR and/or XR *and* lower-priced generic Namenda IR, and an additional (31) at least purchased generic Namenda IR. As I explain further below, Class members who purchased both branded IR and/or XR, and generic Namenda IR were injured in this same way, i.e., by paying more for the generic (“generic-generic” or “GG” damages), as well as by paying more for branded IR and/or XR than they would have paid for generic IR had the generic been available sooner. Those few Class members who purchased only branded IR and/or XR were also injured, as I explain further below, because with earlier generic entry and without a Hard Switch, sales of generic Namenda IR would have been substantially higher, and so all or nearly all Class members would have purchased generic Namenda IR (or more of it) at prices well below branded IR or XR.

B. The generic and but-for Namenda XR entry dates used in my analysis of the No Reverse-Payment But-For World are appropriate

13. As I discussed in the Lamb Report, I was instructed by Counsel for Plaintiffs to assume that, in the but-for world, generic entry would have occurred in June 2012 (had Forest not settled the patent litigation, and that litigation was resolved through the courts, up to the denial of *certiorari* by the United States Supreme Court), or, in the alternative, on November 2, 2012.²⁴ I understand that Professor Einer Elhauge has analyzed generic entry under a world in which Forest did not make any payment to Mylan, but rather only negotiated an entry date with Mylan. I understand that, based on this analysis, he determined that November 2, 2012 is a reasonable date to assume that generics would have entered the market. I further understand that Professor Elhauge and Mr. Johnston are preparing reports to respond to Defendants’ Economists’ criticisms of their analysis of but-for generic entry date. I note that while I have relied upon instruction from Counsel in using June 2012 (or November 2, 2012) as the generic entry date in the but-for world, my methodology could be applied with any alternative but-for generic entry date. Further, based on my training and experience in economics and econometrics and my

²⁴ Lamb Report at ¶125.

research into the memantine hydrochloride market, the dates I considered - June 2012 and November 2, 2012 - are reasonable dates for but-for generic entry.

14. In her report, Dr. Fowdur claims that my model of the No Reverse-Payment But-For World, in which I assume that Namenda XR would have been introduced 12 months prior to generic entry, is inconsistent with what happened in the actual world.²⁵ But the entry date of Namenda XR in the actual world, in which generic entry was delayed by roughly three years, is not controlling when Namenda XR would have been introduced in a but-for world in which generic entry occurred earlier. Dr. Fowdur admitted during her deposition that she had done no analysis of when Namenda XR would have been introduced in the but-for world absent the reverse payment:

Q. [...] Again, you are taking no position, you have no opinion on whether Namenda XR would have launched earlier if generics had entered the market earlier than they actually did?

A. I have not done that analysis. I don't know what would have happened[.]²⁶

Further, Dr. Fowdur fails to understand that, for purposes of estimating damages, what matters is not when Namenda XR would have been introduced in the but-for world, but rather the market share Namenda XR would have been able to capture *prior to generic entry*. This is because damages are driven by the price differential between Namenda XR and generic Namenda IR.

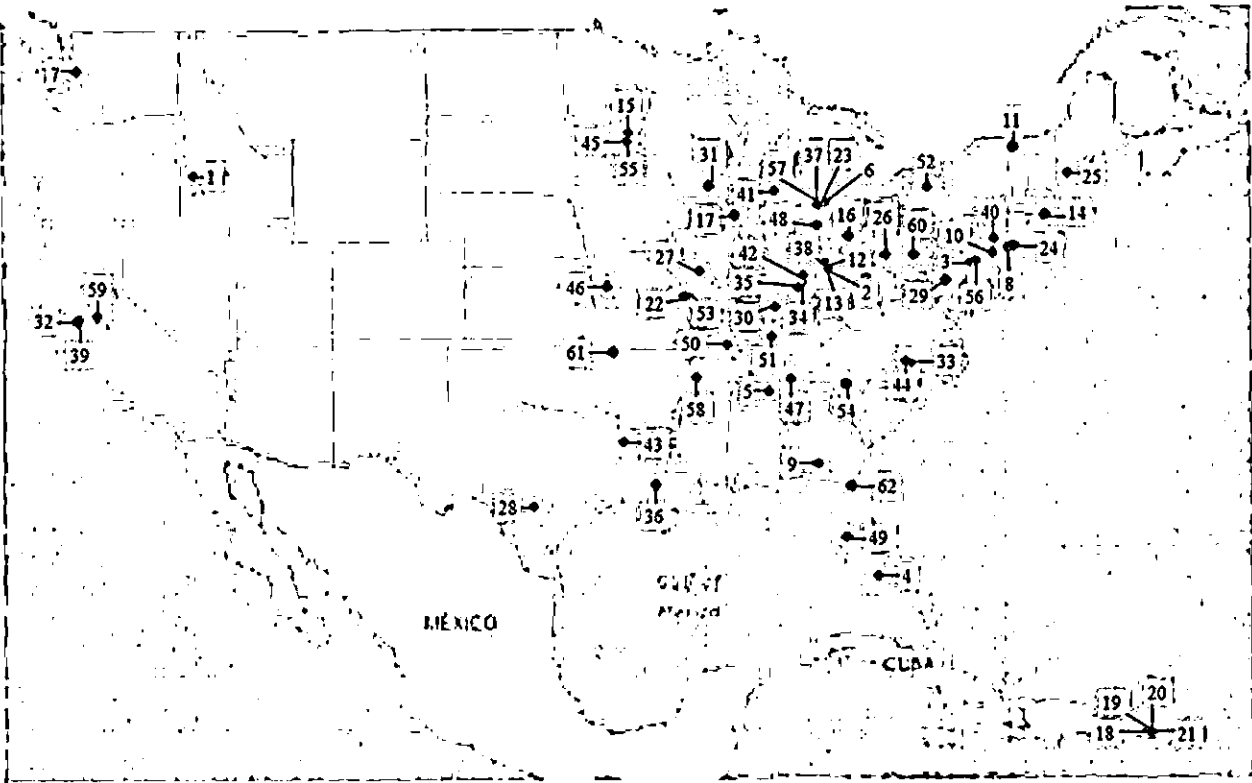
C. Updating the list of proposed Class members does not change any of the conclusions I reached in the Lamb Report regarding class-wide injury

15. I have been instructed by Counsel for Plaintiffs to revise the list of proposed Class members presented in the Lamb Report to reflect certain legal relationships between entities who purchased brand Namenda or generic Namenda IR. Specifically, I was instructed to combine DIK Drug into Cardinal Health Pharmaceutical; combine First Veterinary Supply into The Harvard Drug Group LLC; and combine HD Smith LLC and HD Smith Wholesale Drug Company. I note that Dr. Cremieux adopted the same parenting for these entities. These changes are reflected in the revised map of proposed Class members shown below and in the damages summarized in my revised Exhibit 1 attached to this report.

²⁵ Fowdur Report at ¶88.

²⁶ Fowdur Deposition at 27:6-13.

Figure 2
Revised Map of Proposed Class Members



Legend		
1 ALBERTSONS LLC	22 EXPRESS SCRIPTS INC	43 MORRIS & DICKSON COMPANY LLC
2 AMERICAN HEALTH PACKAGING	23 FRANK W KERR INC	44 NORTH CAROLINA MUTUAL WHOLESALE
3 AMERISOURCEBERGEN CORPORATION	24 GENETCO INC	45 OPTUMRX INC
4 ANDA INC	25 HANNAFORD BROTHERS	46 PBA HEALTH
5 ASSOCIATED PHARMACIES	26 HC PHARMACY CENTRAL INC	47 PEYTONS
6 AUBURN PHARMACEUTICAL	27 HD SMITH	48 PRESCRIPTION SUPPLY INC
7 BARTELL DRUGS COMPANY	28 HE BUTT	49 PUBLIX SUPER MARKETS INC
8 BELCO DRUG CORPORATION	29 HEALTHSOURCE DISTRIBUTORS, LLC	50 QUEST PHARMACEUTICALS, INC.
9 BLOODWORTH WHOLESALE DRUGS	30 HUMANA INC	51 RICHIE PHARMACEUTICAL COMPANY
10 BLUPAX PHARMACEUTICALS, LLC	31 INDEPENDENT PHARMACY COOPERATIVE	52 ROCHESTER DRUG COOPERATIVE INC
11 BURLINGTON DRUG COMPANY	32 KAISER PERMANENTE	53 RX OUTREACH
12 CAPITAL WHOLESALE DRUG CO	33 KERR DRUG INC	54 SMITH DRUG COMPANY
13 CARDINAL HEALTH PHARMACEUTICAL	34 KEYSOURCE MEDICAL, INC.	55 SUPERVALU INC
14 CVS CAREMARK	35 KROGER INC	56 TEL DRUG OF PA LLC JOANN CHRISTENS
15 DAKOTA DRUG INC	36 LOUISIANA WHOLESALE DRUG COMPANY	57 THE HARVARD DRUG GROUP LLC
16 DISCOUNT DRUG MART INC	37 MAJOR PHARMACEUTICALS/RUGBY LAB	58 TOPRX LLC
17 DMS PHARMACEUTICAL GROUP	38 MASTERS PHARMACEUTICAL INC.	59 VALLEY WHOLESALE DRUG COMPANY INC
18 DROGUERIA BETANCES INC	39 MCKESSON CORPORATION	60 VALUE DRUG COMPANY
19 DROGUERIA CENTRAL INC	40 MEDCO HEALTH SOLUTIONS INC	61 WALMART
20 DROGUERIA CESAR CASTILLO	41 MEIJER INC	62 WINN DIXIE LOGISTICS INC
21 DRUGS UNLIMITED, INC.	42 MIAMI LUKEN INC	

D. Other flaws in Defendants' Economists' criticisms of my analysis of the No Reverse-Payment But-For World

16. As I discuss below, Defendants' Economists' other criticisms of my analysis of the No Reverse-Payment But-For World are either irrelevant or unsupported by any sound economic analysis. That is, none of their flawed criticisms causes me to change my opinion that the analysis I discussed in the Lamb Report is economically and econometrically sound, consistent with economic and econometric research, and appropriately relied upon in the calculation of class-wide damages under the No Reverse-Payment But-For World.

i. Dr. Cremieux's analysis of variations in purchasing patterns after generic entry is irrelevant to an assessment of injury

17. Dr. Cremieux incorrectly claims that my analysis of damages under the No Reverse-Payment But-For World is undermined by "differences across proposed class members' actual purchase behaviors."²⁷ However, setting aside his own conclusions regarding the conversion of the memantine hydrochloride market to generic Namenda IR in a but-for world with earlier generic entry, it is incorrect to assume that variations in purchasing patterns after actual generic entry indicate that there would have been a smaller shift towards generics in the but-for world.²⁸ In the but-for world, nearly all sales of memantine hydrochloride would have switched to generic Namenda IR prior to July 2015, when generic entry occurred in the actual world, at lower prices than the brand. The fact that some purchasers of Namenda XR bought more Namenda XR after generic entry in the actual world reflects the fact that the Hard Switch continued to affect sales of Namenda XR through generic entry. That is, Forest's continued communications regarding its appeal of the injunction entered in the NYAG case caused uncertainty over the future availability of Namenda IR to linger such that the Hard Switch continued to affect proposed Class members until nearly the date at which generics entered the market.²⁹ Likewise, Dr. Cremieux fails to

²⁷ Cremieux Report at ¶79.

²⁸ Cremieux Report at ¶82.

²⁹ As I discussed in the Lamb Report, evidence demonstrates that until the Second Circuit affirmed Judge Sweet's ruling on Forest's appeal in May 2015, just two months before actual generic entry, Forest communicated to the entire healthcare community that it was "appealing" the injunction. See Lamb Report at ¶¶111-112. See also Cremieux Deposition at Exhibits 1-8 (Defendants' press releases and communications with the healthcare

understand that the mere fact that a few proposed Class members did not buy generic Namenda IR in the actual world says nothing about their purchases of generic Namenda IR in the but for world.³⁰ In particular, Dr. Cremieux ignores the fact that in a market free of the Hard Switch strategy and in which generics entered in 2012, sales of Namenda XR would have been vastly lower and sales of generic Namenda IR much higher, indicating that proposed Class members would have bought more generic Namenda IR in the but for world than they did in the actual world. Sales of generic Namenda IR would have accounted for 86 percent of total sales of memantine hydrochloride (brand-name Namenda IR + Namenda XR + generic Namenda IR) in the but for world from June 2012 through June 2017 (or, alternatively, 85 percent of total sales from November 2012 to June 2017), but accounted for only 20 percent in the actual world from June 2012 to June 2017 (or, alternatively, 22 percent from November 2012 to June 2017). The marked shift in the market for memantine hydrochloride in the but-for world towards generic Namenda IR means that buying behavior would change for all, or nearly all, proposed Class members. Dr. Cremieux also misstates my testimony in claiming I admitted that proposed Class members who only purchased brand-name Namenda IR are allocated damages under the Hard Switch. In fact, I explained during my deposition that proposed Class members that only purchased brand-name Namenda IR are allocated damages under the No Reverse-Payment But-For World, which removes the effect of the Hard Switch.³¹

18. In short, with earlier generic entry and without the Hard Switch, all or nearly all, proposed Class members would have purchased lower-priced generic Namenda IR in place of the more expensive branded Namenda IR and/or XR, and/or would have purchased the generic at a lower price. This means that all or nearly all, proposed Class members suffered injury in the form of overcharges as a result of Defendants' allegedly unlawful conduct, and this conclusion is

community in December 2014-January 2015, all stating that Defendants were appealing the injunction). See also, Cremieux Deposition at Exhibit 1 at FRX-AT-03670529-532; Cremieux Deposition at Exhibit 2 at FRX-AT-0367602-05; Cremieux Deposition at Exhibit 3 at FRX-AT-03670742-45; Cremieux Deposition at Exhibit 4 at FRX-AT-03794674; Cremieux Deposition at Exhibit 5 at FRX-AT-03983932-35; Cremieux Deposition at Exhibit 6 at FRX-AT-04288492; Cremieux Deposition at Exhibit 7 at FRX-AT-04287221-22; and Cremieux Deposition at Exhibit 8 at FRX-AT-03745344-46.

³⁰ Specifically, Dr. Cremieux incorrectly claims that Bartell Drug Company, DIK Drug, Drogueria Central, First Veterinary Supply, Kerr Drug, and Kroger were uninjured because they did not buy any generic Namenda IR during the proposed Class Period. See Cremieux Report at ¶¶17, 81, 107. Again, DIK Drug and First Veterinary have now been parented with other class members.

³¹ Lamb Deposition at 228:4-20.

based on evidence and analysis that is common to the proposed Class as a whole rather than individual to its members. And, as I discussed in the Lamb Report and discuss further below, damages to the proposed Class as a whole can be calculated in the aggregate.

ii. Defendants' Economists incorrectly argue that the but-for Namenda XR conversion rate should have been higher

19. In the Lamb Report, I explained how the 30 percent but-for Namenda XR conversion rate used in my analysis was based on an analysis of Forest's own forecast documents and related materials.³² As I discuss below in detail, Defendants' Economists' claim, without providing any substantive support, that the but-for conversion rate would have been higher than 30 percent.³³ I discuss the flaws in Defendants' Economists' arguments in greater detail below.

iii. Dr. Cremieux incorrectly claims that I ignore the fact that generic Namenda IR is not an AB-rated generic equivalent to Namenda XR

20. In his report, Dr. Cremieux incorrectly asserts that I fail to acknowledge that generic Namenda IR is not an AB-rated generic equivalent to Namenda XR, and that therefore it is inappropriate to consider the damages arising from the Hard Switch, reflecting the differences between prices for Namenda XR and generic Namenda IR, as "overcharges."³⁴ On the contrary, it is Dr. Cremieux who fails to understand that in a but-for world absent the reverse-payment scheme in which generics enter in June 2012 (or, alternatively, on November 2, 2012) and in which Forest did not pursue the Hard Switch, many of the Namenda XR sales that occurred in the actual world would have been sales of generic Namenda IR in the but-for world, as Forest itself acknowledges. As I explained in the Lamb Report and at my deposition, this is because, absent the Hard Switch, sales of Namenda XR would have remained sales of Namenda IR and,

³² Lamb Report at ¶151.

³³ Dr. Fowdur mischaracterizes my analysis when she claims that I ignored Namzaric. See Fowdur Report at ¶88. In fact, I excluded sales of Namzaric from my analysis of the market in both the No Reverse-Payment But-For World and the No Hard Switch But-For World.

³⁴ Cremieux Report at ¶¶53, 80.

following generic entry, would have converted to sales of generic Namenda IR at prices substantially below brand-name Namenda IR.³⁵

21. In fact, this proposition is hardly controversial, as Forest itself understood that the introduction of Namenda XR, and conversion of Namenda IR sales to sales of Namenda XR, would lead to far lower generic sales than in a world without Namenda XR.³⁶ This desire to avoid the “patent cliff” drove Forest to pursue its Namenda XR Strategy. For instance, as described by Mark Devlin in an email regarding the launch of Namenda XR, “the key is not just conversion but also holding on to the XR business we get and not immediately losing it to generic IR. Managed care and LTC tells us that anyone converted is likely to stay converted...new patients could be hard to get for XR after IR LOE though.”³⁷ In fact, this proved to be the case after generic Namenda IR entered the market and the conversion rate for new patients plummeted.

22. Similarly, in a January 2014 interview with investors, Forest CEO Brent Saunders described the company’s strategy for maintaining the Namenda franchise post generic entry as follows:

Yes. So, clearly, when generic IRs enter the market in July or August of 2015, the Namenda franchise in and of itself will probably clearly not be a growth driver. What we’re trying to do is put up barriers or obstacles to go from a cliff to a steady decline, right, a steady managed decline over four or five years versus in three months a \$1.6 billion product is \$200 million. And I think we’ve got enough barriers with the behavioral changes that the XR bring and the convenience to patients and caregivers.

³⁵ Lamb Report at ¶¶148, 150, 152, 155; Lamb Deposition at 65:10-70:21.

³⁶ At an investigational hearing in connection with the NYAG action, William Meury testified that, “[g]enerally, when there’s direct generic competition, whether it’s a Forest product or any product, there’s an 80 to 90 percent reduction in sales. It’s a fairly well-understood dynamic in the industry.” See William Meury Investigational Hearing, July 10, 2014 at 62:5-63:6. In April 2014, when asked how Forest expected generic entry to impact Namenda XR sales, Mr. Meury stated that they expected to see some erosion in the 5 to 30 percent range. See Bloomberg Transcript of Forest’s Q4 2014 Earnings Call, April 29, 2014, pp. 11-12.

³⁷ FRX-AT-01775350.

And, look, generic Namenda IR is going to take a lot of the new starts, but it's about maintaining the base that you have now and fighting for some of those new starts with the once-a-day convenience or the combo pill.³⁸

23. Weeks later, Brent Saunders reiterated this strategy during Forest's Q3 2014 earnings call: "I think, with respect to Namenda, what happens after the patent expiry, which is July of 2015, the product goes into -- the franchise goes into decline. And we believe that by potentially doing a forced switch we will hold on to a larger share of our base users. [...] We're not just going with both hands tied behind our back."³⁹

24. During the same call, Mr. Saunders further stated the following regarding the portion of the Namenda franchise Forest expected to be able to retain following generic entry:

Keep in mind that this is behavioral change. So once if we do the hard switch and we converted patients and caregivers to once a day therapy versus twice a day, it's very difficult for the generics then to reverse-commute back, at least with the existing Rx's. They don't have the sales force. They don't have the capabilities to go do that. It doesn't mean that it can't happen. It just becomes very difficult, it's an obstacle that will allow us to I think again go into to a slow decline versus a complete cliff.⁴⁰

25. When asked during an interview how the Hard Switch would affect Forest's ability to "withstand the market change" when generics entered, Mr. Saunders responded, "I think when we get to June, most of the market will be on once-a-day therapy. For the generics then to come in, in July, with trying to reverse convert once-a-day back to twice-a-day, becomes very difficult particularly without a sale force. They certainly could hire sale forces and go do that if they so chose, but that's not the model. We know it from our alter ego, it doesn't -- the generic business doesn't support hiring a sales force to reverse convert a group."⁴¹ Mr. Saunders further noted that while Forest did not expect Namenda XR to remain a growth driver come July 2015, "[w]e

³⁸ FRX-AT-01782799-812 at 805-807.

³⁹ Bloomberg Transcript of Forest's Q3 2014 Earnings Call, January 21, 2014, p. 14.

⁴⁰ Bloomberg Transcript of Forest's Q3 2014 Earnings Call, January 21, 2014, p. 14.

⁴¹ Bloomberg Transcript, Sanford C. Bernstein Strategic Decisions Conference, May 29, 2014, pp. 6-7.

expect that we can manage a decline of that franchise in a nice, steady, soft landing versus a patent cliff. And that's the goal of doing that"⁴²

iv. Dr. Cremieux's alternative measure of damages is wrong

26. As I discussed in the Lamb Report, damages suffered by proposed Class members are the overcharges they paid on the memantine hydrochloride they purchased from Defendants. I explained my methodology for calculating the overcharge in the Lamb Report. In his report, Dr. Cremieux incorrectly asserts that "any potential harm would be based on the *difference in profits* that direct purchasers were able to achieve [...], i.e., a 'lost-profits analysis.'"⁴³ I was not asked to perform a lost profits analysis, and I understand that, as a matter of law, the overcharges are the correct measure of damages suffered by direct purchasers (as opposed to competitors) in an antitrust case such as this brought by direct purchasers.

v. Defendants' Economists incorrectly claim that I failed to account for direct purchasers who only purchased Namenda XR prior to generic entry

27. Dr. Fowdur and Dr. Cremieux claim that I erred by not accounting for direct purchasers who purchased only Namenda XR prior to generic entry in July 2015 and, based on the limited transaction-level data available on generic sales, do not appear to have purchased any generic Namenda IR. However, if the generic manufacturers had entered sooner, then, due to the market share gained by the generic manufacturers upon entry in the actual world (40.5 percent of total branded Namenda IR, Namenda XR and generic Namenda IR within a month of generic Namenda IR entry and 52 percent within a year of generic Namenda IR entry),⁴⁴ it is reasonable

⁴² Bloomberg Transcript, Sanford C. Bernstein Strategic Decisions Conference, May 29, 2014, p. 7. Mr. Saunder's reiterated this sentiment when asked about Forest's retention goals post-Hard Switch during a June 2014 conference, stating "generic IRs will come into the market at the end of July of 2015. And so our goal is to continue to grow the market, the entire franchise, up till that point. I think what will happen in 2015 and how we have modeled it and think about it is that the Namenda franchise will go into decline. And it will be very difficult for a generic company to reverse, convert back from XR to IR, unless they hire a sales force, which they're certainly free to do and I don't think they will, but they can if they were so inclined to do that. And so without a sales force and without that investment in a sales force, it's very difficult for them to do that." See Bloomberg Transcript, Goldman Sachs Global Healthcare Conference, June 11, 2014, p. 7.

⁴³ Cremieux Report at ¶37 (emphasis in the original).

⁴⁴ Generic Namenda IR captured nearly all branded Namenda IR sales very quickly – nearly 90 percent within three months. See Lamb Report at ¶81.

to conclude that these customers – who are middlemen in the market - would have purchased generic Namenda IR in the but-for world. Therefore, those purchases of Namenda XR prior to generic entry were harmed under the reverse payment scheme. The same is true for the one proposed Class member who purchased only branded Namenda IR in the actual world.⁴⁵ With much earlier generic entry, this proposed Class member would have purchased at least some amount of the generic at prices below the brand.

III. Defendants' Economists' Analyses of the No Hard Switch But-For World Are Flawed

28. I discussed the impact of Forest's Hard Switch strategy for Namenda XR in detail in the Lamb Report. Specifically, I described how Forest's conduct related to the Hard Switch began and how it evolved from Namenda XR's introduction in June 2013 through the Second Circuit's ruling in May 2015.⁴⁶ I discussed evidence demonstrating that Forest acknowledged and understood that the Hard Switch would reduce competition as well as evidence showing that Forest's marketing efforts surrounding the Hard Switch were targeted at physicians, caregivers, and pharmacies, and that those efforts played a key role in increasing sales of Namenda XR. Importantly, I also presented evidence, which Defendants' Economists ultimately ignored, demonstrating that the Court's December 2014 injunction did not eliminate the anticompetitive effects of the Hard Switch strategy. Lastly, I performed a statistical analysis known as a structural break test, the results of which confirmed that the Hard Switch from Namenda IR to Namenda XR was effective in converting more Namenda IR prescriptions to Namenda XR than otherwise would have been the case.

29. I have reviewed Defendants' Economists' criticisms of my analysis of the No Hard Switch But-For World and have determined that their criticisms suffer from two main flaws. For one, their criticisms are rooted in analyses of patients who are not included in the proposed Class and are irrelevant for purposes of assessing damages suffered by the proposed Class. Second, Defendants' Economists assess injury from Forest's Hard Switch over the wrong damages

⁴⁵ That is Drogueria Central Inc.

⁴⁶ Lamb Report at ¶¶89-118.

period. I discuss each of these flaws in greater detail below and explain why they render Defendants' Economists' conclusions with respect to the Hard Switch incorrect and irrelevant.

A. I appropriately estimated the but-for Namenda XR conversion rate in my analysis of the No Hard Switch But-For World

30. I described my methodology for modeling the No Hard Switch But-For World in the Lamb Report and at my deposition, including my use of a 30 percent Namenda XR conversion rate after 18 months.⁴⁷ Defendants' Economists criticize this but-for conversion rate and claim that it understates the degree to which Namenda XR could have captured the market even without the Hard Switch strategy, including the communications about the Hard Switch both before and after the preliminary injunction entered December 2014.⁴⁸ However, as I discussed in the Lamb Report, this number was not arbitrarily selected, but rather was based on my review and analysis of Forest's own internal analyses produced in this matter. Specifically, I explained in the Lamb Report and at my deposition how I relied upon Forest's own documents and forecasts which analyzed the effect of a conventional or soft switch.⁴⁹ As I explained in the Lamb Report and at my deposition, these forecasts were chosen to satisfy three criteria: 1) they each assumed that generics would enter the market in July 2015, as they actually did; 2) they each assumed that Namenda XR was introduced in June 2013 (as it actually was); and 3) each was created after Namenda XR had entered the market and before the Hard Switch was implemented (and so benefitted from Forest's actual experience with XR).⁵⁰ These criteria ensured that the Forest forecasts I used were conditioned on actual market experience after the introduction of Namenda XR. Further, they all modeled the appropriate relationship between the timing of the Namenda XR launch and Forest's loss of exclusivity on brand-name Namenda IR. That is, they modeled the relationship between generic penetration and Namenda XR conversion in the same way that it occurred in the actual world. I looked at the average Namenda XR forecasted soft switch conversion rate at 18 months after Namenda XR entered the market

⁴⁷ Lamb Report at ¶150; Lamb Deposition at 101:2-105:5.

⁴⁸ Cremieux Report at ¶50; Fowdur Report at ¶¶88, 132-141.

⁴⁹ Lamb Report at ¶152; Lamb Deposition at 44:18-45:21.

⁵⁰ Lamb Report at ¶152; Lamb Deposition at 124:2-126:20.

(November 2014).⁵¹ This analysis resulted in a but-for Namenda XR conversion rate of approximately 30 percent.⁵²

31. Dr. Fowdur suggests, based on a small number of documents, that I should have used a but-for (i.e., “soft switch only”) conversion rate closer to 40 percent.⁵³ The Forest documents that Dr. Fowdur cites as forecasting a 40 percent conversion rate by December 2014 and which rely on a generic entry date of July 2015 are in fact only two unique forecasts, *both* of which were already included in my analysis in the Lamb Report and my calculation of an average 30 percent but-for conversion rate.⁵⁴ Using patient data, Dr. Fowdur claims that the Namenda XR conversion rate for new patients in October 2013 exceeded 40 percent.⁵⁵ Other statements by Forest and third parties conflict with Dr. Fowdur’s analysis of selective observations on Namenda XR conversion. During a January 2014 earnings call, Forest’s William Meury stated that the Namenda XR conversion rate for new patients “was at 15% for most of the third quarter,”⁵⁶ adding three months later that this rate increased from 15 to 30 percent during the fourth quarter of 2013.⁵⁷ This is consistent with an October 2013 analyst report, which noted that “Forest has already converted 17% of new patients to Namenda XR.”⁵⁸ Dr. Fowdur appears to incorrectly assume that information about patient switches to Namenda XR in October 2013 was available to Forest at the time it prepared its October 2013 forecasts. This is wrong. Such data would have become available to Forest with a lag, meaning it could not have informed Forest’s forecasts in October 2013. Because some new patients drop off of therapy, an analysis using data on new-to-therapy patients overstates the average Namenda XR market share prior to generic entry, making that analysis unreliable. This can be seen in Figure 3 below, which demonstrates the degree to which using data on new-to-therapy patients overstates the Namenda XR conversion rate.

⁵¹ Lamb Report at ¶152.

⁵² Lamb Report at ¶152, Table 3.

⁵³ Fowdur Report at ¶¶139-140.

⁵⁴ See Fowdur Report at ¶133 and Footnote 304. See also, Fowdur Report at Footnote 306. Lamb Report, Table 3.

⁵⁵ Fowdur Report at ¶139.

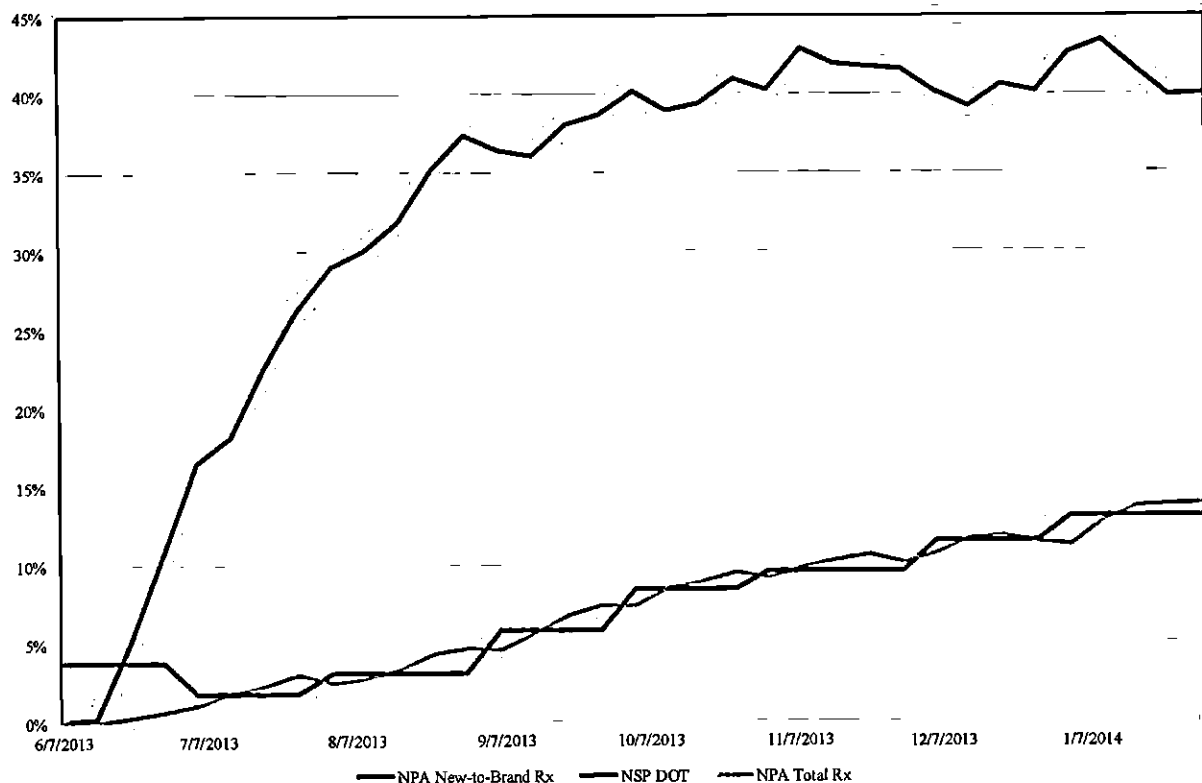
⁵⁶ Bloomberg Transcript of Forest’s Q3 2014 Earnings Call, January 21, 2014, p. 3.

⁵⁷ Bloomberg Transcript of Forest’s Q4 2014 Earnings Call, April 29, 2014, p. 3.

⁵⁸ J.P. Morgan, “Forest Laboratories, Inc.: Raising Estimates On Lower Opex Assumptions; Shares Well Positioned Into Strategic Update,” October 22, 2013, p. 2.

32. The blue line in Figure 3 below – calculated using the weekly NPA New-to-Brand data Dr. Fowdur relies on – represents the number of patients newly prescribed Namenda XR as a percentage of all patients newly prescribed some form of memantine hydrochloride. The gray line – calculated using the weekly NPA total prescription data Dr. Fowdur relies on – represents the total number of patients prescribed Namenda XR as a percentage of all patients prescribed some form of memantine hydrochloride. The orange line – calculated using the monthly NSP data – represents the Namenda XR conversion rate (or Namenda XR’s market share). The disparity between the blue line and the orange and gray lines reflects the fact that using data on new-to-therapy patients overstates the Namenda XR market share as new drugs on the market will, by virtue of being new, have a higher percentage of new prescriptions. The orange and gray lines more closely reflect the actual market shares for Namenda XR as the underlying data captures total volume information, just not the added marginal volume information for new patients.

Figure 3
Namenda XR Conversion Rates



Source: Fowdur Report back-up data; NSP Data.

33. Dr. Fowdur further concludes that a “40% adoption rate of Namenda XR at the time of the injunction provides a valid representation of Forest’s expectations under a soft switch approach alone.”⁵⁹ This is inconsistent with Forest’s own statements regarding its market share post-injunction in the actual world, which included the effect of the Hard Switch. As stated by Forest’s William Meury in February 2015 on Investor Day, “[o]ur market share right now with Namenda and Namenda XR trade somewhere just north of 30%.”⁶⁰ Indeed, Dr. Fowdur disregards the fact that Namenda XR’s *actual* market share in December 2014 (the time of the injunction) was only 34 percent, even though it includes the effect of months of Hard Switch conduct. This 34 percent Namenda XR conversion rate in the *actual* world with the Hard Switch is substantially lower than the 40 percent Dr. Fowdur claims is appropriate in a but-for world free from, and thus not affected by, the Hard Switch conduct. This illustrates the flaws in Dr. Fowdur’s approach.

34. To the extent that Dr. Fowdur’s claim that “there are no economically meaningful differences between the actual world and a but-for world whereby the alleged ‘hard switch’ did not occur”⁶¹ is based on her flawed and unreliable statistical analysis, which I discuss in detail below, it is unreliable and further it is wrong as a matter of economics. Her statistical analysis, which is based on a handful of observations and which does not meet standards for acceptable economic research,⁶² can likewise not reject a conclusion that my 30 percent but-for Namenda XR conversion rate (or revised 32.6 percent Namenda XR conversion rate) is appropriate. As a matter of economics, while Dr. Fowdur’s analysis does not conclude there is a statistical difference between *any* of these rates, clearly her hypothesized 40 percent Namenda XR market share after 18 months makes no sense as a matter of economics, since, even with the hard-switch

⁵⁹ Fowdur Report at ¶132.

⁶⁰ Bloomberg Transcript, Investor Day, February 18, 2015, p. 28.

⁶¹ Fowdur Report at ¶32.

⁶² Estimates based on small sample sizes face a statistical problem known as “Micronumerosity.” As Econometrician Arthur Goldberger explains “Econometrics texts devote many pages to the problem of multicollinearity in multiple regression, but they say little about the closely analogous problem of small sample size in estimating a univariate mean... The consequences of Micronumerosity are serious. Precision of estimation is reduced. There are two aspects of this reduction: estimates of μ may have large errors, and not only that but $V(y)$ will be large.” See Arthur S. Goldberger, *A Course in Econometrics*, Cambridge, MA: Harvard University press, 1999, pp. 248 – 249.

misconduct, Forest had not achieved a 40 percent market share at the time of the injunction (19 months after Namenda XR entered the market).

35. Dr. Fowdur states that I relied on “an arbitrary selection of Forest forecasts” to determine the Namenda XR conversion rate.⁶³ However, as I described above, in the Lamb Report, and at my deposition, my selection of Forest forecasts was comprehensive in that it included all Forest documents created after Namenda XR entered the market and before the Hard Switch announcement and which model a conventional switch accounting for generic Namenda IR entering the market in July 2015.⁶⁴ In her report, Dr. Fowdur states that there are “predictions for the adoption rate to Namenda XR as high as 50%,” but she cites as support only a single document from January 2012, a full 18 months before Namenda XR entered the market, and this forecast by definition could not have been informed by actual market experience for Namenda XR.⁶⁵ Further, in the same paragraph of her report, Dr. Fowdur cites Mark Devlin’s testimony: “executives talked about adoption rates of Namenda XR exceeding 50% ‘all the time.’”⁶⁶ Regardless of such “talk,” Forest’s written analyses tell a different story.

36. In the Fowdur Report, Dr. Fowdur mischaracterizes my deposition testimony in stating that I “conceded that more recent forecasts would be able to incorporate more sales information about XR.”⁶⁷ As I stated in my deposition, it is appropriate to rely on a set of forecasts, the complete set of which are included in Table 3 of the Lamb Report because “looking at more information about Forest’s thinking with respect to the market and letting all of that information inform the decision allows for the possibility that there is one or two pieces of information that are blips, and they get less weight in the analysis if one bases the analysis on a set of documents, a set of information.”⁶⁸ As I explain below, rather than assuming Dr. Fowdur’s unsupported 40

⁶³ Fowdur Report at ¶133.

⁶⁴ Lamb Report at ¶152; Lamb Deposition at 124:2-126:20.

⁶⁵ Fowdur Report at ¶132 and Footnote 301.

⁶⁶ Fowdur Report at ¶132; 30(b)(6) Deposition of Mark Devlin, dated August 29, 2017 (hereafter “Devlin Deposition”) at 251:14-252:1. See also, Devlin Deposition at Exhibit 36, FRX-AT-01630867-888 at 871 which states, “In 18 months, our conversion goal rises to 30% for approximately \$400-450MM in sales.”

⁶⁷ Fowdur Report at ¶138.

⁶⁸ See Lamb Deposition at 143:15-145:15.

percent but-for conversion rate, I have performed an alternative analysis using the 32.6 percent but-for Namenda XR conversion rate discussed by Professor Berndt in his reply report.⁶⁹

- i. Dr. Fowdur's analysis of but-for Namenda XR adoption is flawed and unreliable as a matter of economics.

37. In the Fowdur Report, Dr. Fowdur uses flawed and unreliable regression analyses to predict the but-for Namenda XR conversion rate and claims that her 95 percent confidence intervals show that the November 2014 to January 2014 predicted but-for Namenda XR conversion rates are not statistically different from the actual conversion rates for that period.⁷⁰ Dr. Fowdur's claims are misleading because she bases these findings on unreliable and imprecise regression estimates. Dr. Fowdur's regression analysis is based on such a small sample of data that it cannot accurately identify the underlying statistical relationship she purports to model. This leads to imprecision in the regression estimates themselves, which is reflected in the standard errors of the regression coefficients.⁷¹

38. When a regression model contains imprecise estimates, the resulting confidence intervals are wide and, as commonly discussed in introductory econometrics textbooks, "larger confidence intervals" lend to "less accurate hypotheses tests."⁷² As shown in her Figure E and Table A1, the resulting confidence intervals are not precise. Dr. Fowdur estimates that the but-for conversion rate for November 2014 is between 21.3 percent and 36.6 percent. For December 2014, she estimates that the but-for conversion rate is between 22.4 percent and 38.4 percent, and for January 2015, she estimates that the but-for conversion rate is between 23.6 percent and 40.4 percent.⁷³ These wide confidence intervals illustrate that Dr. Fowdur's model exhibits a high degree of imprecision and that it is misleading as a matter of econometrics to then claim that the

⁶⁹ See Amended Reply Expert Report of Ernst R. Berndt, Ph.D., dated November 8, 2017 (hereafter "Berndt Reply Report") at ¶4. In his reply report, Professor Berndt discusses the merits of using an *average* across a set of forecasts in describing the but-for world.

⁷⁰ Fowdur Report at ¶127.

⁷¹ For a discussion of standard errors see William H. Greene, *Econometrics Analysis*, Seventh Edition, Upper Saddle River, N.J.: Prentice Hall, 2000, (hereafter "Greene"), pp. 101 – 103.

⁷² "The confidence level of a confidence interval for a population mean, μ , signifies the confidence we have that μ actually lies in that interval. The length of the confidence interval indicates the precision of the estimate, or how well we have 'pinned down' μ . Long confidence intervals indicate poor precision; short confidence intervals indicate good precision." See Neil Weiss, *Introductory Statistics*, Ninth Edition (hereafter "Weiss"), p. 333. See also, Jeffrey Wooldridge, *Introductory Econometrics: A Modern Approach*, Fifth Edition, 2013 (hereafter "Wooldridge"), p. 94.

⁷³ Fowdur Report, Figure E and Table A1.

actual conversion rate and the predicted Namenda XR but-for conversion rate are the “same.” One can equally claim that a but-for generic conversion rate of 30 percent, which I included in my original analysis, is not statistically different from the 40 percent rate Dr. Fowdur advocates for. Further, as shown in Dr. Fowdur’s Figure E and Table A1, the 30 percent but-for Namenda XR conversion rate used in my analysis (in addition to the alternative 32.6 percent rate discussed here) falls within Dr. Fowdur’s confidence interval for all three months.

39. Dr. Fowdur obtains similar (and similarly unreliable) results from two regression analyses using patient-level National Prescription Audit (“NPA”) data. As a matter of econometrics, Dr. Fowdur’s monthly NPA and weekly VAR analysis of NPA data are flawed because they simply project a linear increase in the but-for XR conversion rate. Nothing in Dr. Fowdur’s flawed regression analyses limits Namenda XR adoption over time; her analysis is not grounded in any facts of the memantine hydrochloride market, but is a flawed *ad hoc* statistical analysis. Likewise, the same small-sample, low-power problem that exists in Dr. Fowdur’s flawed regression model of Namenda XR conversion based on NSP data exists in her monthly NPA analysis.

40. In her report, Dr. Fowdur attempts to justify her use of NPA data, which does not cover the entire memantine hydrochloride and does not measure purchases by proposed Class members, and describes the NPA data as “more closely track[ing] prescription demand (i.e., prescriptions ultimately dispensed).”⁷⁴ But by using these data, Dr. Fowdur analyzes the wrong step in the supply chain as neither patients nor their physicians are part of the proposed Class in this matter. This is because the NPA data measure commerce at the retail level. Moreover, as I discuss below, patients do not choose which therapies they are prescribed, making Dr. Fowdur’s focus on patient “choice” misguided and inappropriate for purposes of assessing injury suffered by proposed Class members who are direct purchasers. At her deposition, Dr. Fowdur admitted that she conducted no analysis of the pharmaceutical supply chain in this case.⁷⁵ Dr. Fowdur further testified that, unlike the NSP data used in my analysis, which reflects 100 percent of

⁷⁴ Fowdur Report at ¶129.

⁷⁵ Fowdur Deposition at 123:13-16.

sales, the NPA data do not reflect 100 percent of prescriptions.⁷⁶ Indeed, as described in an IMS publication, the NSP is used to “monitor and assess national sales given its accuracy representing 100% of the U.S. pharmaceutical sales market.”⁷⁷ Dr. Fowdur’s inappropriate application of the NPA data further demonstrates the unreliability of her analysis of the but-for Namenda XR conversion rate.

41. The flaw in Dr. Fowdur’s analyses is underscored by the fact that she argues for an increase in the but-for Namenda XR conversion rate after November 2014.⁷⁸ As I explain below, I have performed an alternative analysis of damages under the No Hard Switch But-For World using an alternative but-for conversion rate of 32.6 percent. Specifically, I set the but-for conversion rate at 32.6 percent in November 2014 (18 months after Namenda XR entered the market) and hold the conversion rate constant from November 2014 to May 2015, which is consistent with how Forest forecasted Namenda XR’s market share during this period in the documents I relied upon in Table 3 of the Lamb Report. Despite the fact that none of the Forest forecast documents she relies on predict an increase in the XR conversion rate at all comparable to the increase in Dr. Fowdur’s but-for generic penetration rate under a soft switch, Dr. Fowdur incorrectly claims that Forest’s soft switch projections serve as a “reasonable check on [her] empirical modeling.”⁷⁹

42. Dr. Fowdur also ignores the Court’s adoption of Judge Sweet’s finding that “Forest’s own internal projections estimated that, using only soft-switch tactics, only 30% of Namenda IR patients would voluntarily switch to Namenda XR.”⁸⁰ The Court also noted that, “[i]mportantly, Judge Sweet found that Forest’s hard-switch tactics had *already* resulted in more customers

⁷⁶ Fowdur Deposition at 122:23 – 123:7. According to an IMS publication, The NPA data capture over 70% of all prescription activity in the U.S. See IMS, “HSRN DATA BRIEF: NATIONAL PRESCRIPTION AUDIT.” Available at: https://www.imshealth.com/files/web/IMSH%20Institute/NPA_Data_Brief-.pdf.

⁷⁷ IMS, “HSRN DATA BRIEF: NATIONAL SALES PERSPECTIVES.” Available at: https://www.imshealth.com/files/web/IMSH%20Institute/NSP_Data_Brief-.pdf.

⁷⁸ See Fowdur Report Tables A1-A3.

⁷⁹ Fowdur Report at ¶132.

⁸⁰ United States District Court Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Memorandum Decision and Order Granting in Part and Denying in Part Plaintiffs’ Motion for Collateral Estoppel and Partial Summary Judgment on Count One; Denying Plaintiffs’ and Defendants’ Motions for Partial Summary Judgment on Count Five, May 23, 2017 (hereafter “Collateral Estoppel Order”), p. 24.

converting from Namenda IR to Namenda XR than Forest had estimated would convert voluntarily.”⁸¹ These findings are consistent with the conclusions I reached in the Lamb Report.

43. In sum, the flaws in Dr. Fowdur’s analysis of the but-for adoption rate discussed above render her results – and the interpretation she gives those results – misleading and unreliable.

ii. Dr. Cremieux’s analysis of individual proposed Class member buying patterns is flawed, without merit, and irrelevant

44. In the Lamb Report, I discussed a number of published, peer-reviewed economic studies by government and academic researchers concerning the effects of generic competition on pharmaceutical markets.⁸² As I explained, these studies establish that generic drugs sell at a significant discount to their brand-name counterparts and that as the number of generics increases, that discount widens.⁸³ The literature also establishes that generics quickly capture a significant share of the total market for the drug (brand plus generic) from their brand-name counterparts following generic entry.

45. I also explained in the Lamb Report that, in the case of Namenda IR, following generic entry in July 2015, nearly 90 percent of Namenda IR converted to generic Namenda IR within three months, and roughly 98 percent within 10 months.⁸⁴ This dramatic loss of Namenda IR sales is in line with Forest’s own projections for sales of memantine hydrochloride following generic entry, which was a key factor in its decision to introduce Namenda XR to the market in order to avoid the “patent cliff.”⁸⁵ Dr. Cremieux agrees with me that generic entry would have resulted in a wide-spread shift towards generics in the but-for world.⁸⁶

46. Despite these well-established implications of generic entry, Dr. Cremieux purports to perform an analysis of individual proposed Class members’ purchasing patterns from which he concludes that proposed Class members could not have been impacted by the February 2014

⁸¹ Collateral Estoppel Order, p. 25 (emphasis in the original).

⁸² Lamb Report at ¶¶68-74.

⁸³ As I discussed above and in the Lamb Report, the effect of increasing the number of generics is not linear and the importance of each additional competitor declines as the number of competitors in the market increases.

⁸⁴ Lamb Report at Figure 8.

⁸⁵ See Lamb Report at ¶¶75-78. See also, FRX-AT-01751083-1263 at 1086-1087.

⁸⁶ Cremieux Report at ¶¶35, 78.

announcement.⁸⁷ This analysis is irrelevant to the question of whether any proposed Class member was injured. First, in a but for world in which generic Namenda IR had entered in June 2012 (or November 2012), there would have been nearly four times the volume of generic Namenda IR sold during the proposed Class Period than there was in the actual world. Dr. Cremieux agrees with me that generic entry would have resulted in a wide-spread shift towards generics in the but-for world.⁸⁸ As a matter of economics, it makes no sense to assert, as Dr. Cremieux does, that this shift in the market for memantine hydrochloride would not have resulted in every proposed Class member purchasing some additional generic Namenda IR at a lower price.⁸⁹

47. Dr. Cremieux incorrectly claims that the six proposed Class members who did not purchase Namenda XR before generic entry would not have been injured.⁹⁰ The fact that some proposed Class members purchased Namenda XR after generic entry in the actual world reflects the Defendants' challenged conduct, especially the Hard Switch strategy. Dr. Cremieux's purportedly "uninjured" Class members were in fact injured in the No Reverse-Payment But-For World by the Defendants' misconduct, and his analysis is fatally flawed because he ignores his own conclusion that in the but-for world, nearly the entire market would have switched to generic Namenda IR. I analyze this issue further below.

iii. Defendants' Economists' criticisms of my structural break test are misguided and wrong as a matter of econometrics and economics

48. I discussed in the Lamb Report the structural break test I performed in order to evaluate whether Forest's announcement of the Hard Switch had an impact on the market.⁹¹ As I explained, the positive and statistically significant coefficient produced by this analysis shows that there was a structural break in the Namenda XR conversion rate at the time the Hard Switch strategy was publicly announced in February 2014. In other words, the results of this analysis

⁸⁷ Cremieux Report at ¶62.

⁸⁸ Cremieux Report at ¶35.

⁸⁹ Cremieux Report at ¶35.

⁹⁰ Specifically, Dr. Cremieux claims that proposed Class members Bartell Drug Company, Discount Drug Mart, DMS, HE Butt, Kerr Drug Inc, and Publix Super Markets Inc were uninjured. See Cremieux Report at ¶64.

⁹¹ Lamb Report at ¶119.

demonstrate that the Hard Switch from Namenda IR to Namenda XR was effective in converting more sales of Namenda IR to Namenda XR than otherwise would have been the case.

49. Dr. Fowdur and Dr. Cremieux incorrectly claim that the structural break test I discussed in the Lamb Report cannot determine the cause of the structural break.⁹² As a matter of econometrics and economics, this is a fundamental misunderstanding of the purpose of the structural break test. A test for a structural break is appropriate when there is good reason to believe, based on economic theory or *a priori* understanding, that one exists. In this case, it was appropriate to test for a structural break in February 2014 because, as I explained in the Lamb Report and at my deposition, there is strong reason to believe that the Hard Switch announcement caused the Namenda XR conversion rate to increase.⁹³ Further, contrary to Dr. Cremieux's claim, my test for a structural break was just one component of my larger analysis from which I concluded that proposed Class members were injured by the Hard Switch conduct.⁹⁴

a. Dr. Fowdur's application of the structural break test is flawed

50. Dr. Fowdur claims that the structural break test fails when applied to the NPA data.⁹⁵ This incorrect conclusion is based on differences between the NPA and the NSP data that Dr. Fowdur ignores in her analysis. The supply shortage of Namenda XR manifests itself in the NSP data in August 2014. For this reason, as I explained in the Lamb Report, I included a dummy variable to control for the event. Dr. Fowdur includes the same dummy variable in her model that uses the NPA data. However, the supply shortage manifests itself in September 2014 in the NPA data. If you replace the dummy variable for August 2014 with a dummy variable for September 2014, the structural break coefficient is positive and statistically significant at the 10 percent significance level.⁹⁶ Thus, correcting Dr. Fowdur's analysis to account for the difference between the NSP and NPA data confirms my finding of a structural break.

⁹² Fowdur Report at Footnote 329; Cremieux Report at Footnote 75.

⁹³ Lamb Report at ¶¶89-118; Lamb Deposition at 87:24 – 90:23; 95:13 – 96:19.

⁹⁴ Cremieux Report at ¶¶10, 55; Lamb Report at ¶¶88-120.

⁹⁵ Fowdur Report at Appendix A ¶¶5-8.

⁹⁶ Fowdur Report at Footnote 328.

51. Dr. Fowdur also criticizes my structural break analysis for not controlling for several purported confounding factors, including formulary changes, employee incentive compensation changes, and other soft switch marketing efforts.⁹⁷ However, Dr. Fowdur herself fails to address any of these confounding factors or demonstrate statistically that any of them could have impacted the Namenda XR adoption rate. For instance, Dr. Fowdur claims that changes in formulary coverage were “soft switch” causes of rising share conversion in 2014. As I discussed in the Lamb Report, evidence indicates that Forest communicated its intention to withdraw Namenda IR to managed care entities to influence the decision to add Namenda XR to their formularies.⁹⁸ That is, Dr. Fowdur ignores that the “soft switch” models that were being prepared in the Fall of 2013 were set in the context of Forest’s already aggressive effort to obtain favorable formulary coverage for Namenda XR. Indeed, Forest had identified its top managed care accounts for Medicare Part D and for other commercial accounts and had obtained very significant formulary coverage by the end of the summer of 2013. Therefore, this aspect of Forest’s soft switch tactics would already have been accounted for in Forest’s soft switch analyses. Forest kept close track of its aggressive formulary placement efforts.⁹⁹ By early September 2013, Forest had favorable formulary placement on six of the eight top Medicare Part D Care accounts and six of the nine top Commercial accounts.¹⁰⁰ For so soon after the launch, this was fairly robust coverage.¹⁰¹

⁹⁷ Fowdur Report at ¶147. Dr. Cremieux makes a similar claim in her discussion of my structural break test. See Cremieux Report at ¶57.

⁹⁸ Lamb Report at ¶¶89, 102.

⁹⁹ See FRX-AT-03864752-4815 at 4807 (August 12, 2013 SCC meeting notes reflected that Namenda XR was on Tier 2 of these Strategic Accounts Medicare Part D formularies: Silverscript/Caremark, Humana, Express Scripts/Medco, Coventry, Cigna, Catamaran/SXC/CatalystRx, and the following Commercial Accounts: Express Scripts/Medco, Caremark, Catamaran/SXC/CatalystRx, Aetna, Cigna, and Humana. Namenda was not on the following Medicare Part D Strategic accounts: Optum/United and Aetna, (for Medicare Part D)).

¹⁰⁰ FRX-AT-01647251 at slide 5 (the six Medicare Part D accounts reflected Effective Dates of June and July 2013; the six Commercial Accounts reflected Effective Dates of June through October 2013). See also FRX-AT-01610895-96 at 95 (Oct. 15, 2013 memo subject “Namenda XR – OptumRx (AARP) Medicare Part D”, “**NAMENDA XR has good formulary coverage with 4 of the top 5 National Medicare Part D plans in Tier 2 and over 100 regional plan formularies in Tier 2.**” (emphasis in original)).

¹⁰¹ Dr. Fowdur opined that the early slow adoption rate of Namenda XR was due to poor formulary placement. Fowdur Report at ¶106, Footnote 244; Fowdur Report at ¶137, Footnote 311. The evidence cited in Dr. Fowdur’s report provides no support for this statement (of the four documents cited, four were dated from before the June 2013 launch of Namenda XR (FRX-AT-01604908, a November 2011 document; FRX-AT-01902458, an April 2013 document; and; FRX-AT-01599602, a May 2013 document), and the last document, FRX-AT 03728876-80 and

52. Indeed, by October 11, 2013, Forest was only awaiting Optum, WellPoint, Prime Therapeutic, Aetna, and Cigna in both the Medicare Part D and the Commercial Strategic Account group. Optum was by far the largest Medicare Part D plan,¹⁰² covering approximately 21 percent of the Medicare Part D covered lives. The other three that were secured in December (WellPoint, Prime Therapeutic and Aetna) collectively covered approximately 10.4 percent of Medicare Part D total prescription volume.¹⁰³ Cigna was not secured until the summer of 2014, well after the discontinuation announcement.¹⁰⁴

53. As shown in the Lamb Report, the Optum formulary coverage was not secured until approximately October 28, 2013, when Forest told Optum's representative that Forest would be discontinuing Namenda IR, and offered a 43 percent rebate.¹⁰⁵ Thus, Optum's formulary placement was not set until *after* Optum was informed that Namenda IR would be discontinued. Further, Mr. Devlin had begun contacting other managed care organizations to discuss discontinuation immediately after receiving some of the surveys in December 2013.¹⁰⁶ This shows that Forest was using the discontinuation decision with managed care organizations well in advance of the February 2014 announcement. Mr. Devlin essentially acknowledged Forest's prior communications the day after the announcement when he wrote the following in an email to Bill Meury:

FRX-AT-01655281, were duplicate copies of a report noting a "perceived" lack of formulary coverage, not an actual lack of formulary coverage), because it is at odds with the record. In fact, Namenda XR had quite high formulary coverage upon its launch, presumably due, at least in part, to the three-year delay between its approval by the FDA and when it was finally launched into the US market in June 2013.

¹⁰² Dr. Fowdur admitted Optum was a very important account with over 20% of Medicare Part D coverage. Fowdur Deposition at 150:8-151:10.

¹⁰³ FRX-AT-03812473-74 at 73.

¹⁰⁴ Cigna was the last major account that held out until summer 2014, months after February 14, 2014 when the discontinuation campaign began. FRX-AT-01827979-80 (June 24, 2014 email regarding Namenda Condensed Tracker – Week Ending 6/13/14; "Namenda share within Part D is expected to continue to increase in June due to the Cigna win").

¹⁰⁵ See Lamb Report at ¶102; See also FRX-AT-01610895-96 (Oct. 15, 2013 memo subject "Namenda XR-OptumRx (AARP) Medicare Part D", "OptumRx (AARP) Medicare Part D is not covering Namenda XR. OptumRx accounts for 25% of Medicare Part D beneficiaries nationwide...").

¹⁰⁶ Mr. Devlin testified that after he received a report of survey results in 2013, he contacted managed care organizations Express Scripts, CVS's Silver Script, and Humana, to discuss their reaction to discontinuance. August 21, 2014 Transcript of Mark Devlin at 43:25-45:19. This is consistent with the observations of a market analyst who had noted Forest had contacted large payors about the discontinuance well before February 2014 and asked them "to 'work with them' to enable the switch." FRX-AT-00951656-68 at 58.

We got to every national account and prepped them that we were highly likely to discontinue producing Namenda IR in the first qtr of the year ... also, Troy and the Rams [Regional Account Managers] did the same with our bigger regional accounts. Last week I personally called Mike Anderson from Optum/United, the largest Med D account, and told him we were on track and to expect an announcement within a couple of weeks. We updated Silverscript/Caremark a week ago that this was likely to happen within weeks. [...] We also produced sample letters that accounts can cut and paste from to send to their [I]R patients and providers to help accelerate conversion now rather than in the summer.¹⁰⁷

54. This is consistent with Mr. Devlin's admission that he had been in discussions with managed care accounts in December 2013. As Lei Meng noted in October 2013, Forest was aware that the discontinuation announcement could accelerate conversion.¹⁰⁸ Moreover, Forest apparently did not believe its conduct was unlawful, and thus there would have been no reason for Forest not to have told these entities about its intent to discontinue the sales of Namenda IR. As a rational economic actor that (apparently) believed its conduct was lawful, it is reasonable to expect that Forest had used the information about the discontinuation decision to gain influence with the few remaining managed care organizations that had not yet given Namenda XR the desired treatment on their formularies.

55. In sum, Dr. Fowdur's reference to the "formulary wins" in December 2013 does not provide any support for the notion that the share growth of Namenda XR is explained by untainted "soft switch" tactics that were not already accounted for in the analyses that I considered and relied upon in concluding that the appropriate "soft switch" market share for Namenda XR was approximately 30 percent.

¹⁰⁷ FRX-AT-00948025 (February 15, 2014 email from Devlin).

¹⁰⁸ FRX-AT-03724244-47 at 44 (an October 2013 series of emails among Forest employees discussing an "[u]pdated Namenda model with production forecast," Lei Meng of Forest forecasted "IR to XR conversion accelerating two-fold following the announcement of withdrawal").

b. Dr. Cremieux uses a flawed analysis of individual proposed Class members in testing for a structural break

56. Dr. Cremieux criticizes my analysis for using market-wide share data instead of individual proposed Class member share data.¹⁰⁹ Dr. Cremieux is incorrect as a matter of economics and econometrics. Dr. Cremieux's criticisms are based on an unreliable regression analysis for individual proposed Class members, which is at odds with standard econometric practice and which suffers from a statistical problem known as "low Power."¹¹⁰ Dr. Cremieux conducts a regression analysis for 19 proposed Class members, and he concludes that the structural break test fails when applied to individual proposed Class members.¹¹¹ As I stated at my deposition, as a matter of economics and econometrics, it is not appropriate to conduct a structural break test at the individual proposed Class member level.¹¹² First, conversion of Namenda IR to Namenda XR is a market-wide phenomenon and is appropriately measured at the market level. Further, a test such as the one Dr. Cremieux conducted is unlikely to find evidence of a structural break for each individual purchaser in an individual regression because individual buying patterns are inherently more variable than the market as a whole, making statistical identification of a "break" more difficult. Further, Dr. Cremieux's analysis ignores important relationships between individual proposed Class members in the market. While I maintain that the structural break test should only be conducted at the market level, correcting Dr. Cremieux's analysis to deal with low power and to improve the statistical performance of the analysis leads to a statistically identifiable structural break for nearly all proposed Class members for whom it was possible to estimate individual structural break parameters.

57. Dr. Cremieux analyzes 19 proposed Class members that have complete transactions data by running a separate regression for each individual proposed Class member. That is, he runs separate regressions for each of the 19 proposed Class members with monthly purchases of brand-name Namenda IR or Namenda XR from June 2013 to June 2015.¹¹³ He reports the results in Exhibit 6.1 of his report. For each proposed Class member in Dr. Cremieux's analysis,

¹⁰⁹ Cremieux Report at ¶¶10, 55-56; Fowdur Report at ¶147.

¹¹⁰ Greene, pp. 151-152.

¹¹¹ Cremieux Report at ¶56.

¹¹² Lamb Deposition at 91:19-95:12.

¹¹³ Cremieux Report at Footnote 69.

the coefficient measuring the structural break is positive in Dr. Cremieux's own regression. However, for 18 of the proposed Class members the coefficient is not statistically significant. To correct for the low statistical power in Dr. Cremieux's individual proposed Class member regressions, I pooled the data from all 19 proposed Class members. I then estimated a single equation with a structural break coefficient for each proposed Class member. The hypothesis tests that I have conducted to determine the statistical significance of the structural break coefficients have more power than those conducted by Dr. Cremieux. In statistical terms, power is defined as the probability of not making a type two error in hypothesis testing (i.e., the probability that a test will correctly reject a false null hypothesis).¹¹⁴ When the significance level is unchanged, the probability of making a type two error is decreased by increasing the sample size.¹¹⁵ Compared to my pooled regression model, which contains 475 observations, Dr. Cremieux's individual proposed Class member regressions each contain only 25 observations. As a matter of econometrics, pooling reliable data for the relevant time period being analyzed will generally yield more robust statistical results.¹¹⁶ Indeed, pooling observations from all proposed Class members that have complete transaction data as I have done results in a structural break analysis that is subject to less variability and less error than other methods. As shown in Table 1 below, the pooled structural break model yields positive and statistically significant structural break coefficients for 18 out of 19 proposed Class members.¹¹⁷

58. While it is not appropriate as a matter of economics and econometrics to conduct a structural break test at the proposed Class member level, correcting Dr. Cremieux's test results in statistically significant structural breaks that are consistent with the results of the market-level structural break test that I conducted in the Lamb Report. Dr. Cremieux's claim that the structural break test fails to yield a statistically identifiable structural break when conducted at the proposed Class member level is incorrect and irrelevant. Furthermore, the structural break test that I conducted in the Lamb Report is a reliable method for detecting common impact arising from the announcement of the Hard Switch.¹¹⁸

¹¹⁴ Weiss, pp. 416-418.

¹¹⁵ Weiss, p. 419.

¹¹⁶ Wooldridge, pp. 54, 174.

¹¹⁷ 18 of the 19 proposed Class member coefficients are significant at the 5 percent level when I use robust standard errors.

¹¹⁸ Cremieux Report at Footnote 69.

59. The coefficients reported in Table 1 below measure the change in the Namenda XR conversion rate for each proposed Class member after the Hard Switch announcement. A positive and statistically significant coefficient indicates that a structural break can be identified in the data starting in February 2014. In other words, after the Hard Switch announcement, the Namenda XR conversion rate is increasing at a higher rate for each proposed Class member than it was in the period before the Hard Switch announcement.

Table 1
Pooled Structural Break Test
Proposed Class Members With Purchases in Every Month
June 2013 – June 2015

Class Member	Coefficient (Std. Err.)	Number of Obs.
AMERISOURCEBERGEN CORPORATION	0.018*** (0.002)	25
ANDA INC	0.028*** (0.003)	25
BELCO DRUG CORPORATION	0.015*** (0.003)	25
BURLINGTON DRUG COMPANY	0.012*** (0.003)	25
CARDINAL HEALTH PHARMACEUTICAL	0.019*** (0.002)	25
DAKOTA DRUG INC	0.019*** (0.003)	25
DROGUERIA BETANCES INC	0.004 (0.002)	25
DROGUERIA CESAR CASTILLO	0.007** (0.003)	25
FRANK W KERR INC	0.013*** (0.002)	25
HD SMITH LLC	0.017*** (0.002)	25
MCKESSON CORPORATION	0.020*** (0.003)	25
MIAMI LUKEN INC	0.021*** (0.003)	25
MORRIS & DICKSON COMPANY LLC	0.014*** (0.002)	25
NORTH CAROLINA MUTUAL WHOLESALE DRUG	0.018*** (0.002)	25
PBA HEALTH	0.017*** (0.003)	25
PRESCRIPTION SUPPLY INC	0.016*** (0.004)	25
ROCHESTER DRUG COOPERATIVE INC	0.018*** (0.003)	25
SMITH DRUG COMPANY	0.018*** (0.003)	25
VALUE DRUG COMPANY	0.014*** (0.003)	25

Note: * p<0.05, ** p<0.01, *** p<0.001

B. Defendants' Economists' Hard Switch Damages Period is wrong as a matter of economics and ignores the realities of the pharmaceutical supply chain and Plaintiffs' allegations in this matter

60. Defendants' Economists' analyses of the No Hard Switch But-For World are flawed because they analyze the wrong damages period based on an incorrect assumption concerning economic injury. That is, Defendants' Economists incorrectly analyze the impact of the Hard Switch over the limited period from February to December 2014 ("Defendants' Economists' Hard Switch Damages Period").¹¹⁹ This is despite the significant documentary evidence I discussed in the Lamb Report demonstrating that the Hard Switch would have impacted proposed Class members before February 2014 and after December 2014.¹²⁰ During my deposition in this matter, I explained that my analysis of damages related to the Hard Switch refers to an analysis of the conduct or set of conduct undertaken as part of Forest's Hard Switch strategy, including Forest's communications, announcements, and discussions regarding the removal of Namenda IR from the marketplace.¹²¹ As I discussed in the Lamb Report and reiterate below, this set of conduct began before the start of Defendants' Economists' Hard Switch Damages Period in February 2014 and extended after the injunction in December 2014.

61. Dr. Fowdur's claim that a "focus on patients who were taking Namenda XR as of the injunction date in December 2014 comports with the prior ruling in this matter"¹²² appears to be based on a legal opinion and not an economic one. In part, this reflects the fact that Dr. Fowdur merely assumes away the lingering effect of the Hard Switch which, as my analysis in the Lamb Report and elsewhere here demonstrates, persisted well beyond December 2104. As a matter of economics, to the extent that the Hard Switch caused proposed Class members -- who are direct purchasers, not patients -- to buy more Namenda XR at a higher price than generic Namenda IR (as it did), they were injured. Dr. Fowdur's unsupported assumption that injury ceased on December 15, 2014 is wrong as a matter of economics because it ignores the effect of the Hard

¹¹⁹ Defendants' Economists base their use of this limited damages period on an order concerning downstream discovering. It is my understanding that this order does not represent the Court's finding or ruling with respect to damages under the No Hard Switch But-For World. Further, Dr. Cremieux's references to the Court's "findings" in this context is a legal matter, not an economic one. See Cremieux Report at ¶¶12, 58.

¹²⁰ Lamb Report at ¶¶13, 65-66, 74, 77, 84, 88.

¹²¹ Lamb Deposition at 97:4-100:14.

¹²² Fowdur Report at ¶93.

Switch on physician behavior and the behavior of other parts of the pharmaceutical supply chain. An analysis of patient behavior over this period does not inform an analysis of whether proposed Class members who are direct purchasers were injured by the Hard Switch in this case. This is especially true when the period is inappropriately shortened to exclude a significant period of time when the Hard Switch affected the market, as Dr. Fowdur does. As direct purchasers, proposed Class members would have had to anticipate downstream demand driven by physician prescribing patterns well before any impact on patients could be observed. I discuss this issue in greater detail below.

i. Forest's conduct preceded the February 2014 announcement

62. In the Lamb Report, I cited documents demonstrating that, before the February 2014 announcement of the Hard Switch, Forest had already discussed its Hard Switch plans outside the company.¹²³ For instance, I referenced a 2013 analyst report discussing Namenda IR's looming patent expiration and the impact a hard switch to Namenda XR could have on preventing or reducing eventual conversion to generics:

Namenda is set to go off patent in April 2015, and many generics (more than 10) are going to enter the market at that time. It is reasonable to expect that the price will drop by more than 90 percent. Forest recently came out with Namenda XR [...]. [G]etting as many people using the new version as soon as possible is in Forest's interest. Toward this effort, Forest is considering doing a 'forced switch.'¹²⁴

63. Additional articles indicate that Forest communicated its consideration of a hard switch months before the February 2014 announcement. For instance, a July 2013 analyst report noted that "Forest launched Namenda XR in mid-June and is targeting 20-30% conversion of its Namenda franchise within the next 18-24 months. That said, management has not ruled out a hard switch for the product, which could push conversion well above these levels prior to the Namenda patent expiration."¹²⁵

¹²³ Lamb Report at ¶¶34, 89-91.

¹²⁴ FRX-AT-04225926-28.

¹²⁵ J.P. Morgan, "Forest Laboratories, Inc: Takeaways from FIQ Conference Call – ALERT," July 22, 2013, p. 1.

64. During a July 2013 earnings conference call, Forest Chief Commercial Officer Elaine Hochberg stated, “we do believe a hard switch is something to be considered.”¹²⁶ Ms. Hochberg repeated that sentiment during an October 2013 earnings call, stating, “the issue of a hard switch for Namenda XR has been under very careful consideration here for quite some time.”¹²⁷ Further, an October 2013 *Seeking Alpha* article notes that, during Forest’s second-quarter earnings call, Forest CEO Brent Saunders “did lay[] out the immediate initiatives for Forest.” According to the article, second on Mr. Saunderson’s list was “[a]ccelerating the patient switch from Namenda to the XR version. The current conversion rate is 17%. Since Namenda’s patent expires in 2015 the company is considering a ‘hard switch’ by selling only Namenda XR. Given the lack of therapeutic options in Alzheimer’s we believe they have little [to] lose by doing so.”¹²⁸ A J.P. Morgan analyst report discussing the same second-quarter earnings release noted that, “[i]nterestingly, management appeared more open to a hard switch to Namenda XR (i.e., no longer shipping Namenda) at some point in the future and we believe such an event would represent upside to our estimates.”¹²⁹

65. In response to Robert Jackson’s November 2013 email asking whether someone had “communicated our strategy to Merz,” Wael Fayad (also a Forest employee) stated “if you mean hard switch the answer is yes.”¹³⁰ Similarly, a December 2013 analyst report notes that “Forest announced it is ‘considering’ a hard switch, removing the IR version from the market and forcing it to the second generation product (Namenda XR). [...] [W]e (and the market) assumed Forest would successfully hard-switch. [...] In the most likely scenario, the hard switch will happen.”¹³¹ The same analyst report indicated that Forest had already been in communication with large payors regarding the switch: “Forest has approached the larger payors. [...] It also stated it is ‘seriously considering’ pulling the IR formulation from the market place. Forest asked the payors

¹²⁶ Q1 2014 Forest Laboratories, Inc. Earnings Conference Call – Final, July 23, 2013, p. 12.

¹²⁷ Bloomberg Transcript of Forest’s Q2 2014 Earnings Call, October 22, 2013, p. 10.

¹²⁸ FRX-AT-03598502-09 at 08.

¹²⁹ J.P. Morgan, “Forest Laboratories, Inc.: Raising Estimates On Lower Opex Assumptions; Shares Well Positioned Into Strategic Update,” October 22, 2013, p. 2.

¹³⁰ FRX-AT-01594102.

¹³¹ FRX-AT-00951656-68 at 56.

to ‘work with them’ to enable the switch.”¹³² Brent Saunders of Forest reiterated the company’s intention at a Goldman Sachs Healthcare CEOs Unscripted Conference held on January 7, 2014, stating that the company was “actively considering and debating a hard switch.”¹³³

66. Defendants’ Economists ignore this evidence and incorrectly assert that the Hard Switch had no effect prior to February 2014 when Forest issued a press release announcing its intent to discontinue Namenda IR.¹³⁴ Dr. Fowdur incorrectly claims that I appear to “consider Forest’s actions related to the launch and marketing of Namenda XR to be part of the alleged hard switch.”¹³⁵ At my deposition, I clearly discussed the distinction between normal marketing and conduct related to a hard switch strategy.¹³⁶

67. Further, Dr. Fowdur incorrectly claims that I “implicitly acknowledge[d]” that the period before February 2014 was unaffected by the Hard Switch since I tested for a structural break in February 2014.¹³⁷ The fact that I tested for a structural break at a time when the effect of the Hard Switch was certainly felt in the market does not mean that the period before February 2014 was free of the effects of Forest’s Hard Switch conduct. Indeed, as I discussed above and in the Lamb Report and testified at my deposition, this conduct began months prior to the February 2014 announcement. I chose to test for a structural break in February 2014 because, as I noted above and in the Lamb Report, there is strong reason to believe that the Hard Switch announcement caused the Namenda XR conversion rate to increase.

68. Dr. Fowdur further claims, based on the deposition testimony of Optum’s corporate representative, Mr. Bob Lahman, that the negotiations between Forest and Optum “probably” ended in May of 2013.¹³⁸ Dr. Fowdur ignores the documentary evidence included in the Lamb Report (also discussed above) that Forest was communicating their intention to implement the

¹³² FRX-AT-00951656-68 at 58.

¹³³ FRX-AT-01782799-2812 at 2806. Regarding Forest’s strategy, Mr. Saunders also stated that “If you kind of look at the timing of IR, IR will go generic in July of 2015. And so the sweet spot for a switch would be in the fall, and so that’s kind of how we’re thinking about it.” See FRX-AT-01782799-2812 at 2806.

¹³⁴ Fowdur Report at ¶¶12, 96, 110, 112; Cremieux Report at ¶¶10-14.

¹³⁵ Fowdur Report at ¶32.

¹³⁶ Lamb Deposition at 160:9–162:12.

¹³⁷ Fowdur Report at ¶122.

¹³⁸ Fowdur Report at ¶109. See also Deposition of Bob Lahman, July 14, 2017 (hereafter “Lahman Deposition”).

Hard Switch strategy as a part of their on-going negotiations with Optum in October 2013, at least four months after the date indicated by Mr. Lahman.¹³⁹ Specifically, I cited to a Forest internal email chain discussing terms of the on-going negotiations with Optum.¹⁴⁰ This evidence is at odds with Mr. Lahman's testimony that the Optum negotiations "probably" in May 2013.¹⁴¹ Mr. Lahman's testimony is inconsistent even without the documentary evidence to prove its unreliability. Not only does Mr. Lahman change his answer regarding the timing of the negotiations several times during his deposition, but he also is unable to remember when Namenda XR entered the market.¹⁴² Dr. Fowdur's use of Mr. Lahman's inconsistent testimony is misleading and her subsequent opinion on this matter is unreliable and wrong.

ii. The Court's December 2014 injunction did not completely undo or eliminate the anticompetitive effect of the Hard Switch

69. I explained in the Lamb Report and at my deposition the reasons why it is incorrect to assume that the Hard Switch's effect on the market either ended or was reversed at the time of the injunction in December 2014.¹⁴³ As I discussed above, because physician behavior was influenced both before and after the Defendants' Economists' Hard Switch Damages Period, the impact on direct purchasers also extended before and after the Defendants' Economists' Hard Switch Damages Period. That is, while Defendants' Economists focus on *patient* behavior and – contrary to the facts of the pharmaceutical supply chain – patient "choice," the evidence I have reviewed overwhelmingly indicates that it was *physician* behavior and that of the pharmacy benefit managers ("PBMs") and managed care organizations ("MCOs") who are end-payors, that was the focus of the Hard Switch.

70. Dr. Fowdur's claim that because the injunction required Forest to "undo" the effects of the Hard Switch, it must actually have done so, is conclusory and ignores the reality of the pharmaceutical supply chain.¹⁴⁴ Physicians, not patients, were the primary focus of the Hard Switch conduct, and I have seen no evidence, nor has Dr. Fowdur identified any evidence, that

¹³⁹ Lamb Report at ¶102.

¹⁴⁰ See FRX-AT-03684464-66.

¹⁴¹ Lahman Deposition at 87:7-12.

¹⁴² Lahman Deposition at 86:1-87:12.

¹⁴³ Lamb Report at ¶¶106-118; Lamb Deposition at 72:2 – 80:14.

¹⁴⁴ Fowdur Report at ¶98.

physician behavior changed. Dr. Fowdur's reference to a press release issued by the New York Attorney General's ("NYAG's") office can hardly be considered a form of economic analysis demonstrating the elimination or reversal of the effect of the Hard Switch, nor does the NYAG's office cite to any economic analysis in its press release.

71. Further, Dr. Fowdur assumes that the "900,000" communications Forest sent out after the injunction (beginning in January 2015)¹⁴⁵ focused on undoing the effect of the Hard Switch, ignoring the fact that many of those included communications about the appeal of the court's injunction.¹⁴⁶ As I discussed in the Lamb Report, evidence demonstrates that until the Second Circuit affirmed Judge Sweet's ruling on Forest's appeal in May 2015, just two months before actual generic entry, Forest communicated to the entire healthcare community that it was "appealing" the injunction¹⁴⁷ - a message which Dr. Cremieux agreed that non-lawyers would understand to mean that Forest "disagree[d]" with the injunction and had decided to "go to a higher court to see whether they can convince the higher court that, in fact the lower court's decision was in error."¹⁴⁸ That is, instead of simply informing the healthcare providers, pharmacists and caregivers that Namenda IR would stay on the market, Forest engaged in a communications plan to create uncertainty by informing healthcare providers, pharmacists and caregivers that the injunction was being appealed and therefore may not stay in place.¹⁴⁹ For instance, as noted in a December 2014 analyst report discussing the injunction, "[w]e are surprised by this ruling but view the news as only a modest setback," noting that "Actavis plans to immediately appeal the decision."¹⁵⁰ When asked how the December 2014 injunction would

¹⁴⁵ Cremieux Deposition at Exhibit 4 at FRX-AT-03794674; Cremieux Deposition at Exhibit 5 at FRX-AT-03670742; Cremieux Deposition at Exhibit 6 at FRX-AT-03670602; Cremieux Deposition at Exhibit 7 at FRX-AT-03983932; Cremieux Deposition at Exhibit 8 at FRX-AT-03745344.

¹⁴⁶ As Dr. Fowdur admitted during her deposition, there are more than 15 million caregivers for Alzheimer's patients. Fowdur Deposition at 283:19-288:8. This translates into less than 1 communication for every 15 caregivers. Moreover, the 900,000 communications Dr. Fowdur references pales in comparison to the volume of emails sent by just one vendor on behalf of Forest to communicate the announcement of the withdrawal of Namenda IR. See Fowdur Deposition at Exhibit 24, FRX-AT-03749306-07 (email attaching excel report from just one of the vendors that Forest used in its discontinuation communication campaign, Rosetta.com, reporting on the 2.1 million emails sent to caregivers about the discontinuance in 2014 and the 465,000 emails sent to healthcare providers about the discontinuance in 2014).

¹⁴⁷ Lamb Report at ¶¶111-112.

¹⁴⁸ Cremieux Deposition at 13:4-21.

¹⁴⁹ Some hardcopy letters reportedly were sent without mentioning the appeal. See FRX-AT-04283678.

¹⁵⁰ J.P. Morgan, "Actavis plc: Namenda IR Injunction Only A Modest Setback – ALERT," December 12, 2014, p. 1.

affect Forest's plans to convert the market to Namenda XR, Brent Saunders replied "the key for us, obviously, is we're appealing the roll in [i.e., the ruling] and the stay."¹⁵¹

72. Before the injunction was formally entered on December 15, 2014, Forest issued a press release stating "that Judge Robert Sweet of the United States District Court for the Southern District of New York (New York City) has announced an intent to issue a preliminary injunction apparently requiring the Company to continue distribution of NAMENDA® (memantine HCl) immediate-release tablets."¹⁵² Forest made clear "that it will immediately appeal the decision."¹⁵³ As Dr. Cremieux explained, from a "layman's perspective" an appeal is a "decision by the company to disagree with the initial decision and go to a higher court to see whether they can convince the higher court that, in fact, the lower court's decision was in error."¹⁵⁴ On the day Judge Sweet formally issued the injunction, December 15, 2014, Forest issued another press release announcing "that it is filing an emergency appeal to the U.S Court of Appeals for the Second Circuit seeking to Immediately overturn a lower court ruling[.]"¹⁵⁵

73. On January 6, 2015, Forest issued a press release announcing that the Second Circuit "granted the Company's motion to expedite its appeal[.]"¹⁵⁶ In that release, Forest's CEO and President was quoted: "We are pleased that the Appeals Court has agreed to hear this on an accelerated basis and optimistic that the Court will overturn the lower court's unprecedented ruling."¹⁵⁷ In the same month, Forest instructed its sales representatives and managers to inform customers that it had "appealed the decision and expect more information to be available in February."¹⁵⁸ During this time period, Forest sent "multiple waves of emails"¹⁵⁹ to "healthcare providers, pharmacists and caregivers" stating that Forest was "appealing" the injunction

¹⁵¹ Bloomberg Transcript, Goldman Sachs CEO Unscripted Health Care Conference, Section, January 6, 2015, p. 8.

¹⁵² Cremieux Deposition at Exhibit 1 at FRX-AT-03670529.

¹⁵³ Cremieux Deposition at Exhibit 1 at FRX-AT-03670529.

¹⁵⁴ Cremieux Deposition at 13:4-21.

¹⁵⁵ Cremieux Deposition at Exhibit 2 at FRX-AT-03670602.

¹⁵⁶ Cremieux Deposition at Exhibit 3 at FRX-AT-03670742.

¹⁵⁷ Cremieux Deposition at Exhibit 3 at FRX-AT-03670742.

¹⁵⁸ Cremieux Deposition at Exhibit 4; 30(b)(6) Deposition of Julie Snyder, October 11, 2017 (hereafter "Snyder Deposition") at Exhibit 7.

¹⁵⁹ Cremieux Deposition at Exhibit 9 at FRX-AT-03749306.

order,¹⁶⁰ including through the website WebMD.¹⁶¹ Indeed, during a conference held in May 2015, just days before the Second Circuit would reach its ruling, Mr. Saunders reiterated the fact that Forest was still appealing the injunction.¹⁶² At his deposition, Dr. Cremieux admitted that he had done no analysis to determine how many, if any, of Forest's communications regarding the injunction did not also mention the appeal.¹⁶³

74. Notably, neither Dr. Cremieux nor Dr. Fowdur cite to any documents indicating that Forest sent out a wave of communications after May 22, 2015 announcing that Forest had lost its appeal and was finally ending its effort to reverse the injunction (and even if some such communications were sent, they were not sent until nearly the point at which generics entered the market). In fact, Forest did not drop its legal efforts opposing the injunction until November 2015 (after the injunction had expired).¹⁶⁴

75. The evidence discussed above and in the Lamb Report demonstrates that Forest's Hard Switch conduct continued to impact the market after December 2014 as Forest's continued discussions and communications regarding its appeal would be expected to create confusion and doubt in the marketplace, especially among physicians, about the future availability of Namenda IR. Thus, as a matter of economics, Defendants' Economists are incorrect that the effects of the Hard Switch ended or were reversed at the time of the injunction on December 15, 2014.¹⁶⁵

C. Defendants' Economists' patient analyses are irrelevant and inconsistent with the theory of the case in this matter

76. As I discussed in the Lamb Report, I understand from Counsel for Plaintiffs that the proposed Class in this matter consists of all persons or entities in the U.S. who purchased branded Namenda IR, and/or generic Namenda IR, and/or branded Namenda XR directly from

¹⁶⁰ Cremieux Deposition at Exhibits 5-7; Snyder Deposition at Exhibits 8-10.

¹⁶¹ Cremieux Deposition at Exhibit 8; Snyder Deposition at 129:18-21, Exhibit 19.

¹⁶² Bloomberg Transcript, UBS Global Health Care Conference, May 18, 2015, p. 3.

¹⁶³ Cremieux Deposition at 43:17–44:21. Julie Snyder, who submitted a declaration stating that Forest sent “over 900,000” communications about the injunction (Declaration of Julie Snyder, dated Oct. 6, 2017 at ¶5) testified that she did not know how many did not also mention the appeal. See Snyder Deposition at 127:19 – 128:25.

¹⁶⁴ See Cremieux Deposition at Exhibit 13 (Nov. 25, 2015 Allergan (Forest) press release).

¹⁶⁵ Lamb Report at ¶¶106-109.

Defendants and/or any generic manufacturer during the proposed Class Period.¹⁶⁶ Plaintiffs' Counsel reiterated this definition in their Memorandum of Law in Support of Direct Purchaser Class Plaintiffs' Motion for Class Certification, describing the proposed Class to include direct purchasers, including wholesalers, distributors, and other entities who purchased Namenda IR and/or Namenda XR and/or generic Namenda IR directly from Defendants or generic manufacturers.¹⁶⁷ Because the proposed Class is limited to direct purchasers, neither patients nor their physicians are included as proposed Class members.

77. As I discuss below, the analyses performed by both Dr. Fowdur and Dr. Cremieux are geared towards a class of consumers or patients who are prescribed memantine hydrochloride, rather than the wholesalers and distributors who are direct purchasers and, therefore part of the proposed Class. Dr. Fowdur, for instance, criticizes my analysis for failing to account for patients' "revealed preferences."¹⁶⁸ These analyses of patient behavior are not only flawed, but are also irrelevant to the question of whether proposed Class members were injured.

- i. Dr. Fowdur's analysis of patients is flawed and irrelevant and cannot be used to show that proposed Class members were uninjured by the Hard Switch

78. In the Lamb Report, I discussed the pharmaceutical supply chain and explained how my analysis could be used to measure class-wide damages to proposed Class members, who are direct purchasers.¹⁶⁹ Rather than analyze the effect of the challenged misconduct with respect to direct purchasers, i.e., proposed Class members, Defendants' Economists analyze patients who are not part of the proposed Class and who do not choose which pharmaceuticals they are prescribed.

79. Dr. Fowdur, for instance, criticizes my methodology for not being able to identify the set or number of patients who switched to Namenda XR because of the Hard Switch or the number

¹⁶⁶ Lamb Report at ¶6.

¹⁶⁷ In the United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Case No. 1:15-CV-07488-CM-JCF, Memorandum of Law in Support of Direct Purchaser Class Plaintiffs' Motion for Class Certification, filed September 28, 2017.

¹⁶⁸ Fowdur Report at ¶¶14, 88, 100, 144-145, 168.

¹⁶⁹ Lamb Report at ¶¶24-26, 121-126.

of patients who remained on Namenda XR after generic entry.¹⁷⁰ But such an analysis of patient switching is irrelevant to the question of whether proposed Class members who are direct purchasers, not patients, were injured by Defendants' challenged conduct. Further, Dr. Fowdur claims that I conceded during my deposition that my Hard Switch damages analysis may include patients who purchased Namenda XR out of preference and were therefore not affected by the Hard Switch.¹⁷¹ But as I explained in my testimony, my analysis measures the incremental effect of the Hard Switch and any purported preference for Namenda XR would already be accounted for under the patients who switched in the soft switch but-for world.¹⁷²

80. Further, in her report, Dr. Fowdur discusses an analysis of prescription data from which she estimates the Namenda XR adoption rate before, during, and after Defendants' Economists' Hard Switch Damages Period.¹⁷³ Based on this analysis, she concludes that high adoption rates reflect patient preference for Namenda XR over IR and that Forest's February 2014 announcement did not cause any antitrust injury to Plaintiffs.¹⁷⁴ But in performing such an analysis, Dr. Fowdur implicitly assumes that the effect of the Hard Switch conduct ends in December 2014. Further, this analysis is irrelevant to the proposed Class here, which, as noted above, does not include patients. Further, Dr. Fowdur's analysis is flawed as it analyzes the wrong step in the supply chain and reaches incorrect conclusions regarding the impact of the challenged misconduct.

81. As an initial matter, Dr. Fowdur's rationale for performing this analysis is based on a fundamental misunderstanding of the relevant questions for purposes of assessing injury to proposed Class members as a result of the Hard Switch. According to Dr. Fowdur, the "relevant questions for purposes of computing alleged harm to Plaintiffs" are "1) How many incremental patients (if any) were on Namenda XR at the time the injunction was entered because of the February 2014 announcement? (2) How many of those incremental patients remained on Namenda XR subsequent to generic entry in July 2015?"¹⁷⁵ As I explained above, an analysis of patients is irrelevant to the question of whether proposed Class members, who are direct

¹⁷⁰ Fowdur Report at ¶162.

¹⁷¹ Fowdur Report at ¶164, Footnote 352.

¹⁷² Lamb Deposition at 56:7 – 58:11.

¹⁷³ Fowdur Report at ¶¶88, 95-98, 103.

¹⁷⁴ Fowdur Report at ¶¶12, 101.

¹⁷⁵ Fowdur Report at ¶94.

purchasers, were injured. Proposed Class members' purchases of memantine hydrochloride are driven by anticipated downstream demand arising from physician prescribing patterns and ultimate sales of memantine hydrochloride at retail. That is, as noted above, the timing and pattern of any purported patient switching patterns is irrelevant to an analysis of injury because physician behavior was affected outside of Defendants' Economists' Hard Switch Damages Period. Setting aside the fact that Alzheimer's patients do not choose the therapy they are prescribed, which is chosen by the physician, the economics of supply chain management show that direct purchasers must purchase well in advance of changes in actual patient behavior. This means that behavior observed at the patient level cannot be used to assess injury at the direct purchaser level.

ii. Defendants' Economists' analyses of "patient choice" ignore the fact that physicians dictate prescriptions

82. Defendants' Economists' analyses of "patient choice" in this matter are wrong as a matter of economics, reflect a misunderstanding of the supply chain, and are not based on any sound economic analysis. As a matter of economics, patients do not choose therapies. Doctors or physicians prescribe therapies which may or may not be covered by insurance plans. Defendants' Hard Switch strategy affected physician prescribing patterns before February 2014 and after December 2014. Physicians were incentivized to prescribe Namenda XR because of concerns related to the withdrawal of Namenda IR both before and after the February to December 2014 period. Because physician behavior was influenced outside the Defendants' Economists' Damages Hard Switch Period, direct purchasers were affected

83. I discussed the pharmaceutical supply chain in detail in the Lamb Report.¹⁷⁶ I explained how the proposed Class in this matter consists of direct purchasers, including wholesalers and distributors, whose demand for memantine hydrochloride is driven by downstream demand arising from physician prescribing patterns and ultimate sales of memantine hydrochloride at retail. Defendants' Economists ignore the well-established economics of the pharmaceutical supply chain in their repeated references to patient "choice" regarding Namenda XR versus Namenda IR, or, for that matter, with regard to the choice of Namenda IR versus generic

¹⁷⁶ Lamb Report at ¶¶24-26.

Namenda IR. As a matter of economics, patients, who are the final consumers of memantine hydrochloride, play at best a limited role in the “choice” of which memantine hydrochloride formulation they consume.¹⁷⁷ For any prescription pharmaceutical, a prescription by an authorized physician is required to obtain the drug. This means that, as a practical matter, physicians played a critical role in the share of the memantine hydrochloride market which Namenda XR was able to capture. Further, decisions by PBMs and MCOs as to which therapies to cover and which formulations to prescribe play a critical role in the volume of sales for any pharmaceutical. In the case of memantine hydrochloride, however, the basic economics of the pharmaceutical supply chain are exacerbated by the nature of the patient population on memantine hydrochloride therapy, all of whom have been diagnosed with Alzheimer’s Disease with moderate to severe dementia.

84. As Forest’s Elaine Hochberg herself noted, Forest’s “promotional effort remains strong and is focused on educational programs to physicians, nurse practitioners, consultant pharmacists – basically those who care for Alzheimer’s disease patients in both the retail and long-term-care settings.”¹⁷⁸ To assert, as Dr. Fowdur and Dr. Cremieux do repeatedly, that patients “switched” or “chose” Namenda XR or Namenda IR ignores this basic fact of the patient community. Notably, because physicians are largely unaware of the cost of pharmaceutical therapies, they do not directly put pressure on prices through their decision making.¹⁷⁹ As stated in the Second Circuit’s ruling, in the prescription drug market, “the party who selects the drug (the doctor) does not fully bear its costs, which creates a price disconnect. Moreover, a patient can only obtain a prescription drug if the doctor writes a prescription for that particular drug. The doctor selects the drug, but the patient, or in most cases a third-party payor such as a public or private health

¹⁷⁷ For instance, as described in a report to the FTC, “the forces of competition do not work well in a market where the consumer who pays does not choose, and the physician who chooses does not pay. Patients have little influence in determining which products they will buy and what prices they must pay for prescriptions.” See Bureau of Consumer Protection, “Drug Product Selection: Staff Report to the Federal Trade Commission,” January 1979, pp. 2-3.

¹⁷⁸ Bloomberg Transcript of Forest’s Q4 2013 Earnings Call, April 23, 2013, p. 4.

¹⁷⁹ G. Michael Allan, Joel Lexchin and Natasha Wiebe, “Physician Awareness of Drug Cost: A Systematic Review,” *PLoS Medicine*, 4(9), September 2007, e283, pp. 1486-1496.

insurer, pays for the drug. As a result, the doctor may not know or even care about the price and generally has no incentive to take the price into account.”¹⁸⁰

iii. Documents confirm that physicians were the target of Forest’s Hard Switch strategy

85. Record evidence I have reviewed indicates that Forest understood the importance of physicians in the Namenda XR conversion process. For instance, one email from the “Namenda XR Brand Team” to sales representatives instructs sales representatives to “take a look at the number of your Namenda XR prescribers. Right now we are getting our prescriptions from a relatively small group of *physicians* [...]. Your goal should be to have every prescriber of Namenda prescribing Namenda XR.”¹⁸¹ The same document makes clear where Forest saw the focus of converting sales of Namenda to Namenda XR: “Third, ask the physician if you can enlist the help of the office staff and pharmacies to switch appropriate Patients.”¹⁸² This sales strategy document establishes that Forest understood the critical role played by physicians in converting sales of Namenda to Namenda XR. Similarly, a summary report on a 2011 Namenda XR advisory board meeting notes that “[p]rescribers are the key decision-makers with regard to initiating therapy with Namenda XR. [...] Prescribers are the ultimate decision-makers for adding a new drug.”¹⁸³

86. In another email exchange between Forest employees, Mark Devlin, the former Vice President of Account Management at Forest, specifically *rejects* a direct marketing strategy, noting “THIS ISN’T AN OTC PRODUCT—WE HAVE BETTER MORE DIRECT METHODS.”¹⁸⁴ An investor report published on December 18, 2013, when Forest was in the midst of implementing the Hard Switch strategy, noted that the “game plan” seemed to be to get

¹⁸⁰ United States Court of Appeals for the Second Circuit, *People of the State of New York, by and through Eric T. Schneiderman, Attorney General of the State of New York v. Actavis and Forest Laboratories*, Decided May 22, 2015, p. 13. Similarly, an FTC report explains that “[t]he institutions of the prescription drug market are markedly different from those in most other product markets. For prescription drugs, it has not been the consumer who has made the choice among brands; it has been the physician.” See Alison Masson and Robert L. Steiner, “Generic Substitution and Prescription Drug Prices: Economic Effects of State Drug Product Selection Laws,” Federal Trade Commission, September 1985, p. 5.

¹⁸¹ FRX-AT-01775242 (emphasis added).

¹⁸² FRX-AT-01775242.

¹⁸³ FRX-AT-03865799-818 at 801, 808.

¹⁸⁴ FRX-AT-01775244.

“physicians ...accustomed to writing Namenda XR,” so that “Forest would remove the IR formulations from the market...”¹⁸⁵ This further demonstrates that the focus of Forest’s strategy was on physician behavior, not patient behavior. In one internal Forest presentation entitled “Namenda IR & XR Conversion Plan,” Forest discussed “Elements of a successful Transition” and key audiences for communications around the transition, noting that “MDs awareness will be created by the field force; Training will be essential.”¹⁸⁶ There is no mention made of targeting patients as part of Forest’s Namenda XR conversion efforts.

87. Documents I have reviewed in this matter, as well as my research into the pharmaceutical supply chain, and my training and experience in economics, indicates that physicians, not patients, were a primary focus of Forest’s efforts. Forest’s strategy with respect to the Hard Switch focused on physicians’ behavior because, as Jerry Lynch put it in a speech launching Namenda XR, “Physicians have habits and old habits die hard.”¹⁸⁷ From the start, the Hard Switch campaign was designed and intended to accelerate the change in physician’s prescribing behavior, and did, in fact, impact these habits.¹⁸⁸

D. Dr. Cremieux’s argument that there should have been negative damages from sales of Namenda XR before generic entry is at odds with basic economic theory and Plaintiffs’ allegations

88. As I explained in the Lamb Report, sales of Namenda XR at prices below Namenda IR reflects Forest’s strategy to convert Namenda sales from Namenda IR to Namenda XR before

¹⁸⁵ FRX-AT-00951656-1668 at 1658.

¹⁸⁶ FRX-AT-01775264-5301 at 5278.

¹⁸⁷ FRX-AT-01630868-888 at 884. See also, FRX04195587-98 at 89, 96-97 (in a June 2013 draft of a speech on the Namenda XR launch, Maria Theodore of Forest noted, “We have to persuade physicians about why they should treat today with Namenda XR... why they should convert their patients. [...] “But there is another obstacle ... too. I’ll give you a hint...we all have them ... some good and some bad It’s ‘habit’. Namenda is a good product and physicians have been prescribing it for almost a decade. It’s very automatic. It’s a habit. Usually ...this obstacle disappears over time because over time new habits will form. However ... given our urgency ... we need to speed up the process. Physicians need to start automatically adding the letters XR on the prescription pad right away. Leave this message wringing in doctors’ ears ... ‘Don’t forget -you have to write Namenda XR!’”).

¹⁸⁸ See Cremieux Deposition at Exhibit 25 at FRX-AT-03724244 (October 2, 2013, “I have IR to XR conversion accelerating two-fold following the announcement of withdrawal. I think acceleration will definitely happen but the exact magnitude is difficult to predict.”); FRX-AT-03724248, “Namenda Monthly_Withdrawal” tab quantifies “acceleration” expected).

generic entry, in advance of the “patent cliff.”¹⁸⁹ Merely pricing Namenda XR below Namenda IR is neither itself part of the Hard Switch nor part of the challenged conduct, but represents Forest's business strategy. There is no basis in economics to conclude that these differences should be treated as an offset to damages. Further, as I discussed above, increasing Namenda XR sales after the injunction reflect the degree of uncertainty regarding the future availability of Namenda IR created and reinforced by Forest's Hard Switch communications.

89. In the Cremieux Report, Dr. Cremieux claims that my analysis ignores the fact that “proposed class members are better off in the actual world than in the but-for world prior to generic entry since they purchased the less-expensive Namenda XR rather than Namenda IR.”¹⁹⁰ He speculates, without providing any supporting analysis, that it is incorrect to set “these overcharges to zero rather than netting them out of any positive overcharge calculation.”¹⁹¹ By claiming that the aggregate damages in No Hard Switch But-For World should net out any negative “overcharges,” Dr. Cremieux implies that the Hard Switch announcement benefitted proposed Class members, but Dr. Cremieux provides no analysis to support his (apparent) claim that the Hard Switch was pro-competitive. As I explained at my deposition, the fact that Namenda XR was priced below Namenda IR price indicates that Forest knew it was not an “improvement.”¹⁹² Further, even if Dr. Cremieux was correct that it is appropriate to treat sales of lower priced Namenda XR as an offset to damages, I demonstrate below that accounting for the price differential between Namenda IR and Namenda XR prior to generic entry and deducting this amount does not change my finding that proposed Class members suffered positive damages as a result of the Hard Switch.

E. Dr. Fowdur's analysis of the actual Namenda XR adoption rate is flawed

90. I explained in the Lamb Report and above why the Hard Switch conduct would have continued to impact the market after the December 2014 injunction.¹⁹³ Dr. Fowdur claims that

¹⁸⁹ Lamb Report at ¶40.

¹⁹⁰ Cremieux Report at ¶52.

¹⁹¹ Cremieux Report at ¶52.

¹⁹² Lamb Deposition at 57:8-58:11.

¹⁹³ Lamb Report at ¶¶106-118.

an increase in the Namenda XR conversion rate after the injunction could not have been a function of the Hard Switch conduct.¹⁹⁴ Rather, she incorrectly argues that “[t]he sustained increase in the rate of adoption of Namenda XR during Period 3 likely reflects the significant value patients placed on the benefits of Namenda XR relative to IR and the impact of Forest’s soft switch methods during Period 3.”¹⁹⁵ This is wrong as a matter of economics and exhibits a misunderstanding of the supply chain and the intended and actual effect of the Hard Switch strategy. I have seen no evidence indicating that Forest reversed the effect of the Hard Switch on the marketplace. In particular, as I noted above, the press release issued by the NYAG’s office cannot be used as evidence that the economic effects of the Hard Switch ended.¹⁹⁶ Dr. Fowdur’s claim that the Hard Switch did not affect Namenda XR conversion after the preliminary injunction merely assumes away the effect of the challenged conduct. As I noted above, Forest specifically targeted physician behavior as part of the Hard Switch because, as Forest itself understood, “[p]hysicians have habits and old habits die hard.”¹⁹⁷ That is, changing physician prescribing patterns could effectively shift the market to Namenda XR, irrespective of how long any single *patient* remained on Namenda. This is in fact what I observe in the actual world.

91. Further, any purported benefits of Namenda XR over Namenda IR would have been known by Forest and would have informed its soft switch strategy such that their effect would have already been reflected in the forecasted Namenda XR conversion rate under the soft switch. Moreover, to the extent that Namenda XR does have any perceived benefits over Namenda IR, those benefits would have been constant over time, and, therefore, contrary to Dr. Fowdur’s claim, cannot be used to explain any increase in the Namenda XR conversion rate after the December 2014 preliminary injunction.¹⁹⁸ Forest’s continued discussions and communications

¹⁹⁴ Fowdur Report at ¶116.

¹⁹⁵ Fowdur Report at ¶116.

¹⁹⁶ Fowdur Report at ¶99.

¹⁹⁷ FRX-AT-01630868-888 at 884. See also, FRX-AT-03860763-64 at 64 (a September 2013 memorandum on “Namenda XR Steps to Successful Conversion” which instructs sales representatives to “[b]e sure physicians don’t forget to prescribe Namenda XR. Even the most committed physicians with strong intentions to convert patients have reported that they ‘just simply forgot about Namenda XR’ and renewed many Namenda prescriptions in the time between a representative’s call cycle. This is not uncommon, as it’s hard to break old habits. Be persistent by attaching reminder messages to all sales presentations. You may also leave ‘Remember to Write’ postcards, which you will be receiving soon.”).

¹⁹⁸ Fowdur Report at ¶¶156-158.

regarding its appeal created confusion in the marketplace, especially among physicians, about the availability of Namenda IR. Thus, because the use of Namenda XR in the actual world still reflects, in part, the effect of the Hard Switch conduct, the experience in the actual world cannot be used as evidence that people prefer Namenda XR to Namenda IR.

92. Dr. Fowdur's claim that the increase in the Namenda XR conversion rate after the injunction reflects Forest's use of soft switch marketing strategies is similarly misleading and flawed.¹⁹⁹ As discussed above, Forest's communications post-injunction included repeated assertions concerning its pending appeal. Further, this is inconsistent with the fact that the Namenda XR market share in the actual world far exceeded her preferred soft-switch-only Namenda XR conversion rate of 40 percent. Nowhere in her report does Dr. Fowdur address this issue.

93. As noted above, Forest understood that once physicians began prescribing Namenda XR, they were unlikely to switch back to Namenda IR. As Jerry Lynch stated in a speech launching Namenda XR, "Physicians have habits and old habits die hard."²⁰⁰ In sum, the fact that the Namenda XR conversion rate increased after the injunction demonstrates that the injunction did not eliminate the effect of the Hard Switch conduct.

IV. Accounting for Dr. Fowdur's and Dr. Cremieux's Flawed Criticisms Yields Positive Class-Wide Damages

94. As I discussed at my deposition, I believe my analysis of class-wide damages is appropriate and sound, and wherever possible, based on conservative assumptions regarding the but-for world.²⁰¹ As I noted above, Defendants' Economists offer relatively few meaningful criticisms of my damages analysis with respect to the No Reverse-Payment But-For World, and I believe their criticisms of certain assumptions are wrong as a matter of economics. Further, Defendants' Economists' analyses of the No Hard Switch But-for World focus almost exclusively on an incorrect understanding of economic damages arising from the Defendants' Hard Switch strategy, including an irrelevant analysis of patient "choice" and flawed analyses of

¹⁹⁹ Fowdur Report at ¶117.

²⁰⁰ FRX-AT-01630868-888 at 884.

²⁰¹ Lamb Deposition at 112:10-115:20, 187:3-189:16.

the Namenda XR conversion rate which is at odds with Forest's own forecasts. As I demonstrate below, even accounting for Defendants' Economists' criticisms, my analysis still demonstrates positive damages under both the No Reverse Payment But-for World and the No Hard Switch But-for World.

A. Adjusting the Namenda XR Conversion Rate

95. As I discussed above, in the Lamb Report, and at my deposition, I based my use of a 30 percent but-for Namenda XR conversion rate on an analysis of Forest's forecast documents.²⁰² This analysis was consistent with the forecast analysis conducted by Professor Ernst Berndt in the Berndt Report. I have also noted that Dr. Fowdur criticizes Professor Berndt's interpretation and use of Forest's forecasts.²⁰³ I have reviewed Professor Berndt's reply report in which he responds to Dr. Fowdur's criticisms, and I have relied on parts of his analysis there in preparing this report.²⁰⁴

96. I discussed above the flaws in Defendants' Economists' criticisms of the but-for Namenda XR conversion rate used in my analysis. Setting the merits of Defendants' Economists' criticisms aside, as I explain below, assuming a higher Namenda XR but-for conversion rate does not change my conclusion that proposed Class members suffered positive damages.

97. To construct an alternative Namenda XR but-for conversion rate for use in measuring damages in the No Hard Switch But-For World as well as in the No Reverse Payment But-for World, I relied on the analysis conducted by Professor Berndt in his reply report which finds the average forecast conversion rate to be 32.6 percent.²⁰⁵ Professor Berndt explains in his reply report why he uses this average conversion rate, and I have relied on Professor Berndt's opinion

²⁰² Lamb Report at Table 3; Lamb Deposition at 101:2-102:2.

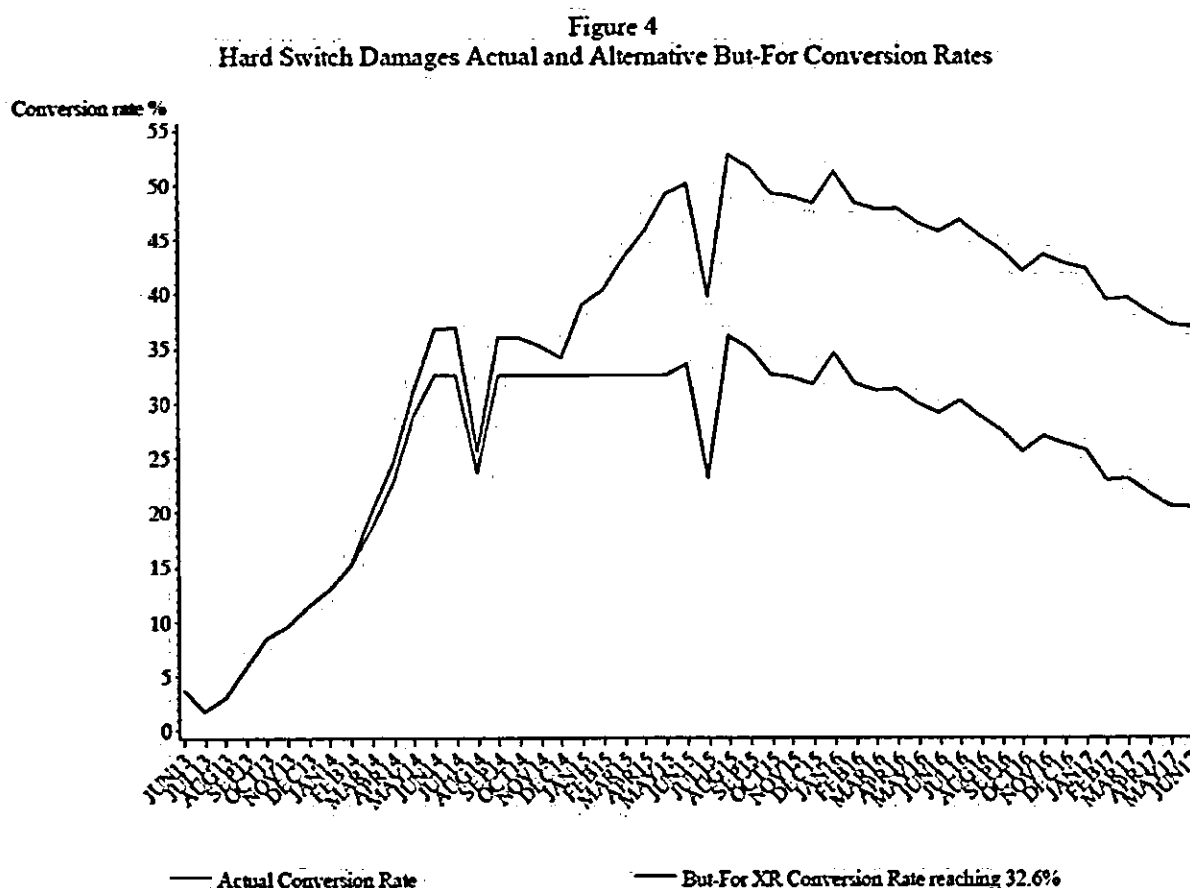
²⁰³ Fowdur Report at ¶¶6, 13-15, 98.

²⁰⁴ See Berndt Reply Report at ¶4.

²⁰⁵ Berndt Reply Report at ¶4. I constructed the alternative but-for conversion rate similarly to the but-for conversion rate I relied on in the Lamb Report. Specifically, I set the but-for conversion rate at 32.6 percent in November 2014 (18-months after Namenda XR entered the market) and back cast this rate to February 2014 based on the trend of the actual conversion rate. For months when the actual rate exceeded 32.6 percent, I set the rate at 32.6 percent. I kept the alternative but-for conversion rate constant from November 2014 to May 2015, which is consistent with how Forest forecasted Namenda XR's market share during this period in the documents I relied upon in Table 3 of the Lamb Report. Starting again in June 2015, I allowed the alternative but-for conversion rate to follow the trend of the actual conversion rate.

in that regard. Professor Berndt is an authority on pharmaceutical markets who has published widely in the peer-reviewed economics literature. Further, Professor Berndt's testimony in the NYAG litigation informed Judge Sweet's opinion in entering the preliminary injunction on December 15, 2014.

98. Figure 4 below shows the actual Namenda XR conversion rate and the but-for conversion rate that reaches 32.6 percent at 18 months in the No Hard Switch But-For World in my alternative analysis.



Source: NSP Data.

99. For the No Reverse-Payment But-For World, I have performed two alternative analyses in which I account for a higher Namenda XR but-for conversion rate. In the first alternative analysis, rather than allowing the Namenda XR but-for conversion rate to peak at 30 percent, I allow it to peak at 32.6 percent in the 12 months after Namenda XR entered the market. I maintain the assumption that Namenda XR would have entered the market 12 months before

generic Namenda IR and that the Namenda XR but-for conversion rate would steadily decline after generic Namenda IR entered the market. In the second alternative analysis, where I calculate damages solely attributable to the reverse-payment scheme, I allow the Namenda XR but-for conversion rate to follow the actual experience of the Namenda XR conversion. Specifically, I constructed a second alternative Namenda XR but-for conversion rate for the No Reverse-Payment But-For World by first calculating the actual conversion rate of Namenda XR. I calculated the actual conversion rate as the total DOT of Namenda XR divided by the total DOT of memantine hydrochloride in each month using the NSP data. I then shifted back the actual conversion rate to the month when Namenda XR would have entered the market in the but-for world (June 2011 or November 2011). I again maintain the assumption that Namenda XR would have entered the market 12 months before generic Namenda IR. For those months in which I did not have data on memantine hydrochloride DOT, I allowed the but-for conversion rate to decrease at the rate the actual conversion rate declines in the months after generics enter the market.

100. As shown in Tables 3 and 4 below, even taking into account Defendants' Economists' flawed criticisms, the results of my alternative damages models still demonstrate positive damages under the No Reverse-Payment But-For World, even assuming no damages from the Hard Switch.

B. Accounting for lower Namenda XR prices in the No Hard Switch But-For World

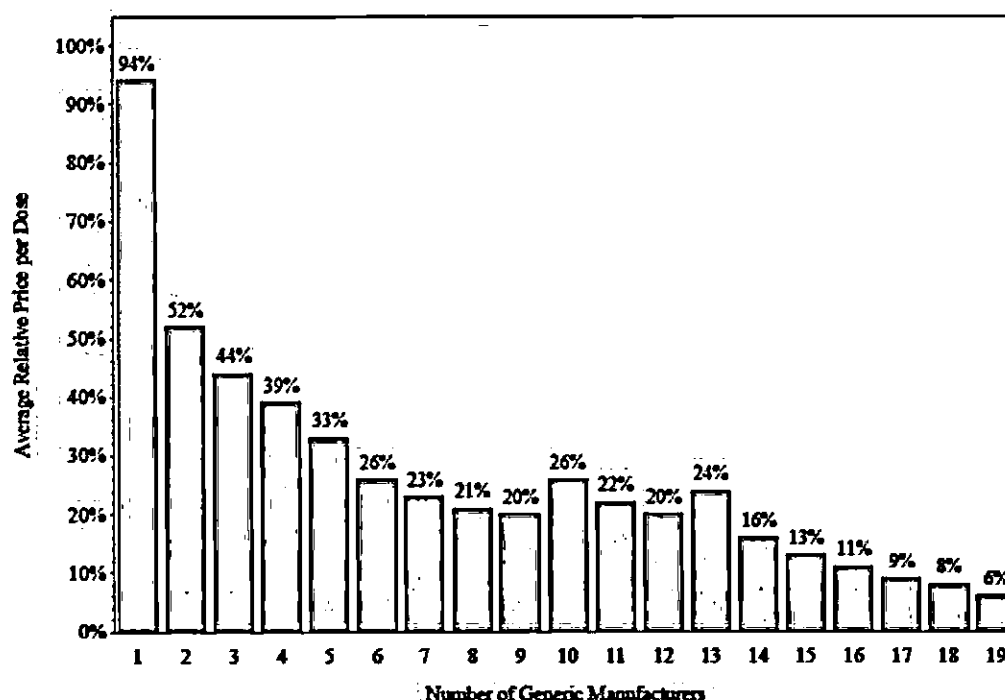
101. Setting aside the merits of Dr. Cremieux's criticisms regarding lower Namenda XR prices discussed above, I can account for the price differential between Namenda IR and Namenda XR prior to generic entry and deduct this amount from class-wide damages resulting from the Hard Switch.

C. Accounting for higher but-for generic prices under the No Reverse-Payment But-For World

102. Setting aside the flaws in Defendants' Economists' analyses of generic prices in the but-for world, I have implemented an alternative damages analysis in which, using information contained in a publicly available academic research study, I account for the fact that in the actual world there were additional generic entrants. At my deposition, I discussed a document I had cited in the Lamb Report showing the average relative price of generic to brand price based on

the number of generic manufacturers in the market, which can be seen in Figure 5 below.²⁰⁶ As shown, on average, the generic price is 39 percent of the brand price when four generic manufacturers are in the market and 26 percent of the brand price when six generic manufacturers are in the market. Further, as the number of generic manufacturers increases, the generic-brand price ratio changes. I use this information to model the but-for generic price ratio.

Figure 5
Generic Competition and Drug Prices



Source: FDA analysis of retail sales data from IMS Health, IMS National Sales Perspective (IMS), 1999 - 2004, extracted February 2005.

103. Using the data provided by the FDA in the figure above, I created a but-for generic price to control for the presence of four generic competitors from the but-for generic entry date through September 2015 in the but-for world. In the actual world, the number of generic competitors in each month can be determined using the NSP data. To calculate the but-for

²⁰⁶ Lamb Deposition at 219:22-223:6; FDA, "Generic Competition and Drug Prices," March 13, 2010, Available at <https://www.fda.gov/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm129385.htm>.

generic price, I first calculated the ratio of the average relative prices for the actual number of generic competitors to the average relative prices for the but-for number of generic competitors.²⁰⁷ I then used this ratio to adjust the actual generic prices to the levels that would have occurred in a but-for world with only four competitors. Table 2 below contains the adjustments I used to calculate the but-for generic price.

Table 2
Generic Price Adjustment using Ratio of FDA Average Relative Prices

Actual Number of Generic Manufacturers	But-For Number of Generic Manufacturers	But-For Generic Price Adjustment
6	4	1.5
7 to 14	4	1.81

Source: NSP Data. FDA analysis of retail sales data from IMS Health, IMS National Sales Perspective (TM), 1999-2004, extracted February 2005

D. Alternative damages under the No Reverse-Payment But-For World and the No Hard Switch But-For World

i. No Reverse-Payment But-For World

104. I discussed above the flaws in Defendants' Economists' criticisms of my analysis of the No Reverse-Payment But-For World. While I maintain that the analysis I presented in the Lamb Report is economically and econometrically sound, consistent with economic and econometric research, and appropriately relied upon in the calculation of class-wide damages, I have performed an alternative analysis in which I account for a higher Namenda XR but-for conversion rate (32.6 percent) and higher but-for generic prices.

105. The first alternative model shown in Table 3 below accounts for a higher but-for Namenda XR conversion rate (32.6) and higher but-for generic prices. Under the second alternative model, I calculate damages solely attributable to the reverse-payment scheme. That is, in addition to accounting for the possibility that but-for generic prices might be higher than in

²⁰⁷ The NSP Data show that the actual number of generic manufacturers ranges from 6 to 14. For the purposes of my analysis, I averaged the average relative prices for when the number of generic manufacturers in the market was between 7 and 14.

the Lamb Report, I allow the but-for Namenda XR conversion rate to follow the experience of the Namenda XR conversion rate in the actual world. As shown in Table 3 below, even taking into account Defendants' Economists' flawed criticisms, the results of my alternative damages model still demonstrate positive damages under the No Reverse-Payment But-For World. And all or nearly all Class members suffered injury.

Table 3 Aggregate Reverse-Payment Damages by But-For Generic Entry Date						
Generic Entry Date Damages Type	Lamb Report Model		Alternative Model (1) 32.6% XR Conversion		Alternative Model (2) Actual XR Conversion	
	NSP Data	Transaction-Level Data	NSP Data	Transaction-Level Data	NSP Data	Transaction-Level Data
November 2, 2012						
Brand-Generic	\$6,058,542,837	\$6,097,532,223	\$5,721,832,201	\$5,728,976,129	\$3,510,081,929	\$3,521,249,691
Generic-Generic	\$32,939,026	\$78,353,141	\$10,857,400	\$37,651,975	\$10,857,400	\$37,651,975
Total	\$6,091,481,863	\$6,175,885,364	\$5,732,689,601	\$5,766,628,104	\$3,520,939,328	\$3,558,901,666
June 2012						
Brand-Generic	\$6,790,865,089	\$6,852,249,306	\$6,461,575,911	\$6,476,114,075	\$4,091,800,680	\$4,115,911,098
Generic-Generic	\$32,939,026	\$78,353,141	\$13,766,535	\$40,428,461	\$13,766,535	\$40,428,461
Total	\$6,823,804,115	\$6,930,602,447	\$6,475,342,445	\$6,516,542,536	\$4,105,567,214	\$4,156,339,559

Source: NSP data & transaction-level sales data.

ii. No Hard Switch But-For World

106. I discussed above the flaws in Defendants' Economists' criticisms of my analysis of the No Hard Switch But-For World. While I maintain that the analysis I presented in the Lamb Report is economically and econometrically sound, consistent with economic and econometric research, and appropriately relied upon in the calculation of class-wide damages, I have performed an alternative analysis in which I account for a higher Namenda XR but-for conversion rate (32.6 percent) and adjust damages to reflect the fact that Namenda XR sold at a lower price than Namenda IR during Defendants' Economists' Hard Switch Damages Period. As shown in Table 4 below, even taking into account Defendants' Economists' flawed criticisms, the results of my alternative damages model still demonstrate positive damages under the No Hard Switch But-For World.

Table 4
Aggregate Hard Switch Damages by Data Source

(1) Lamb Report Model		(2) Alternative Model	
NSP Data	Transaction-Level Data	NSP Data	Transaction-Level Data
\$814,377,824	\$775,888,693	\$695,322,880	\$659,441,384

Source: Lamb Report Table 4; NSP data & transaction-level sales data.

V. Conclusions

107. I have reviewed the reports submitted by Dr. Fowdur and Dr. Cremieux to determine whether any of their criticisms of my analyses cause me to change the opinions I reached in the Lamb Report. I discussed above the numerous flaws in Dr. Fowdur's and Dr. Cremieux's analyses and the resulting opinions expressed in their reports. Based on my review of the Fowdur Report and the Cremieux Report, the additional analyses and research into the markets for generic Namenda IR and brand-name Namenda IR and XR I have undertaken, and my training and experience in economics and econometrics, I have reaffirmed the conclusions set forth in the Lamb Report. That is, I have reaffirmed my conclusions that all, or nearly all, proposed Class members were impacted (overcharged) by Defendants' challenged anticompetitive conduct.

108. While I maintain that the analyses I presented in the Lamb Report are economically and econometrically sound, consistent with economic and econometric research, and appropriately relied upon in the calculation of class-wide damages, I have incorporated several of Defendants' Economists' flawed criticisms into my alternative analysis. As shown, although I do not credit Defendants' Economists' flawed criticisms and do not believe they are valid for the reasons discussed above, the results of my alternative damages analysis still demonstrate positive damages. Specifically, based on my alternative damages analysis, I have estimated total damages related to the No Reverse-Payment But-For World scenario to be between \$3.52 billion and \$6.52 billion. All, or nearly all, proposed Class members suffered injury (in the form of an overcharge) in the No Reverse-Payment But-For World under all alternative calculations. Total

damages related to the No Hard Switch But-For World scenario are between \$659 million and \$695 million. All, or nearly all, proposed Class members who purchased at least Namenda IR and Namenda XR, or Namenda XR suffered injury (in the form of an overcharge) in the No Hard Switch But-For World.

A handwritten signature in black ink, reading "Russell L. Lamb Ph.D.", written over a horizontal line.

Russell L. Lamb, Ph.D.

November 9, 2017

Exhibit 1

Exhibit 1a

**Total Pay-to-Delay Damages (USD) Allocated to Direct Purchasers by Market Share
November 2012 Generic Entry**

Direct Purchaser	Share of B-G Damages	Share of G-G Damages
ALBERTSONS LLC		\$158,196
AMERICAN HEALTH PACKAGING		\$203,998
AMERISOURCEBERGEN CORPORATION	\$1,564,962,697	\$1,587,460
ANDA INC	\$51,562,294	\$289,968
ASSOCIATED PHARMACIES		\$85,105
AUBURN PHARMACEUTICAL		\$69,465
BARTELL DRUGS COMPANY	\$11,988	
BELLCO DRUG CORPORATION	\$12,210,654	
BLOODWORTH WHOLESALE DRUGS		\$11,039
BURLINGTON DRUG COMPANY	\$4,186,654	\$34,154
CAPITAL WHOLESALE DRUG CO	\$236,438	\$65,314
CARDINAL HEALTH PHARMACEUTICAL	\$1,412,678,562	\$5,500,686
CVS CAREMARK		\$7,034,389
DAKOTA DRUG INC	\$20,260,941	\$84,045
DISCOUNT DRUG MART INC	\$872,757	\$12,269
DMS PHARMACEUTICAL GROUP	\$13,347	\$15
DROGUERIA BETANCES INC	\$14,856,014	\$153,875
DROGUERIA CENTRAL INC	\$323,780	
DROGUERIA CESAR CASTILLO	\$1,047,002	\$26
DRUGS UNLIMITED, INC.		\$11,624
EXPRESS SCRIPTS INC		\$545,482
FRANK W KERR INC	\$8,457,641	\$42,069
GENETCO INC		\$45,480
HANNAFORD BROTHERS		\$59,594
HC PHARMACY CENTRAL INC		\$179
HD SMITH	\$102,496,176	\$294,184
HE BUTT	\$57,544	\$122,757
HUMANA INC		\$363,562
INDEPENDENT PHARMACY COOPERATIVE		\$13,686
KAISER PERMANENTE		\$1,293,363
KERR DRUG INC	\$16,784	
KEYSOURCE MEDICAL, INC.		\$518,606
KROGER INC	\$60,503,974	
LOUISIANA WHOLESALE DRUG COMPANY	\$4,600,614	\$85,918
MAJOR PHARMACEUTICALS/RUGBY LABORAT		\$452,139
MASTERS PHARMACEUTICAL INC.		\$471,343
MCKESSON CORPORATION	\$2,538,437,262	\$5,695,801
MEDCO HEALTH SOLUTIONS INC		\$725,372
MEIJER INC		\$97,543
MIAMI LUKEN INC	\$2,165,547	\$15,287
MORRIS & DICKSON COMPANY LLC	\$95,096,213	\$508,007
NORTH CAROLINA MUTUAL WHOLESALE DRUG	\$24,480,457	\$117,713
OPTUMRX INC		\$177,307
PBA HEALTH	\$2,848,128	\$38,008
PEYTONS		\$674,172
PRESCRIPTION SUPPLY INC	\$1,251,730	\$332,605
PUBLIX SUPER MARKETS INC	\$316,494	\$30,996
QUEST PHARMACEUTICALS, INC.		\$11,439
RICHE PHARMACEUTICAL COMPANY		\$8,672

Exhibit 1a**Total Pay-to-Delay Damages (USD) Allocated to Direct Purchasers by Market Share
November 2012 Generic Entry**

Direct Purchaser	Share of B-G Damages	Share of G-G Damages
ROCHESTER DRUG COOPERATIVE INC	\$21,281,695	\$139,507
RX OUTREACH		\$4,982
SMITH DRUG COMPANY	\$87,900,247	\$466,610
SUPERVALU INC		\$35,325
TEL DRUG OF PA LLC JOANN CHRISTENS		\$44,151
THE HARVARD DRUG GROUP LLC	\$330,880	\$60,056
TOPRX LLC		\$77,214
VALLEY WHOLESALE DRUG COMPANY INC	\$878,151	\$75,185
VALUE DRUG COMPANY	\$24,200,168	\$167,459
WALMART		\$3,752,931
WINN DIXIE LOGISTICS INC		\$72,694
Total	\$ 6,058,542,837	\$ 32,939,026

Sources: NSP data and transaction-level data.

Notes:

Direct Purchasers are included in the share of B-G damages if they purchased either Namenda IR or Namenda XR

Direct Purchasers are included in the share of G-G damages if they purchased generic memantine hydrochloride.

As I explain in my report, the Sun data could not be analyzed for purposes of measuring damages. Therefore, Direct Purchasers who only purchased from Sun are not included in this analysis. However, it is my opinion that they suffered antitrust injury.

Exhibit 1b

**Total Pay-to-Delay Damages (USD) Allocated to Direct Purchasers by Market Share
June 2012 Generic Entry**

Direct Purchaser	Share of B-G Damages	Share of G-G Damages
ALBERTSONS LLC		\$158,196
AMERICAN HEALTH PACKAGING		\$203,998
AMERISOURCEBERGEN CORPORATION	\$1,732,074,709	\$1,587,460
ANDA INC	\$52,696,340	\$289,968
ASSOCIATED PHARMACIES		\$85,105
AUBURN PHARMACEUTICAL		\$69,465
BARTELL DRUGS COMPANY	\$11,990	
BELLCO DRUG CORPORATION	\$13,642,739	
BLOODWORTH WHOLESALE DRUGS		\$11,039
BURLINGTON DRUG COMPANY	\$4,638,073	\$34,154
CAPITAL WHOLESALE DRUG CO	\$266,579	\$65,314
CARDINAL HEALTH PHARMACEUTICAL	\$1,593,091,671	\$5,500,686
CVS CAREMARK		\$7,034,389
DAKOTA DRUG INC	\$22,213,805	\$84,045
DISCOUNT DRUG MART INC	\$1,194,208	\$12,269
DMS PHARMACEUTICAL GROUP	\$13,349	\$15
DROGUERIA BETANCES INC	\$16,771,756	\$153,875
DROGUERIA CENTRAL INC	\$543,602	
DROGUERIA CESAR CASTILLO	\$1,268,739	\$26
DRUGS UNLIMITED, INC.		\$11,624
EXPRESS SCRIPTS INC		\$545,482
FRANK W KERR INC	\$9,873,810	\$42,069
GENETCO INC		\$45,480
HANNAFORD BROTHERS		\$59,594
HC PHARMACY CENTRAL INC		\$179
HD SMITH	\$117,451,769	\$294,184
HE BUTT	\$57,552	\$122,757
HUMANA INC		\$363,562
INDEPENDENT PHARMACY COOPERATIVE		\$13,686
KAISER PERMANENTE		\$1,293,363
KERR DRUG INC	\$16,786	
KEYSOURCE MEDICAL, INC.		\$518,606
KROGER INC	\$71,632,768	
LOUISIANA WHOLESALE DRUG COMPANY	\$4,601,237	\$85,918
MAJOR PHARMACEUTICALS/RUGBY LABORAT		\$452,139
MASTERS PHARMACEUTICAL INC.		\$471,343
MCKESSON CORPORATION	\$2,855,745,727	\$5,695,801
MEDCO HEALTH SOLUTIONS INC		\$725,372
MEIJER INC		\$97,543
MIAMI LUKEN INC	\$2,388,416	\$15,287
MORRIS & DICKSON COMPANY LLC	\$106,202,815	\$508,007
NORTH CAROLINA MUTUAL WHOLESALE DRUG	\$27,663,571	\$117,713
OPTUMRX INC		\$177,307
PBA HEALTH	\$3,213,990	\$38,008
PEYTONS		\$674,172
PRESCRIPTION SUPPLY INC	\$1,372,780	\$332,605
PUBLIX SUPER MARKETS INC	\$316,537	\$30,996
QUEST PHARMACEUTICALS, INC.		\$11,439
RICHE PHARMACEUTICAL COMPANY		\$8,672

Exhibit 1b**Total Pay-to-Delay Damages (USD) Allocated to Direct Purchasers by Market Share
June 2012 Generic Entry**

Direct Purchaser	Share of B-G Damages	Share of G-G Damages
ROCHESTER DRUG COOPERATIVE INC	\$23,425,765	\$139,507
RX OUTREACH		\$4,982
SMITH DRUG COMPANY	\$99,549,169	\$466,610
SUPERVALU INC		\$35,325
TEL DRUG OF PA LLC JOANN CHRISTENS		\$44,151
THE HARVARD DRUG GROUP LLC	\$402,865	\$60,056
TOPRX LLC		\$77,214
VALLEY WHOLESALE DRUG COMPANY INC	\$1,038,497	\$75,185
VALUE DRUG COMPANY	\$27,483,474	\$167,459
WALMART		\$3,752,931
WINN DIXIE LOGISTICS INC		\$72,694
Total	\$ 6,790,865,089	\$ 32,939,026

Sources: NSP data and transaction-level data.

Notes:

Direct Purchasers are included in the share of B-G damages if they purchased either Namenda IR or Namenda XR.

Direct Purchasers are included in the share of G-G damages if they purchased generic memantine hydrochloride.

As I explain in my report, the Sun data could not be analyzed for purposes of measuring damages. Therefore, Direct Purchasers who only purchased from Sun are not included in this analysis. However, it is my opinion that they suffered antitrust injury.

Appendix A



Russell Lamb, Ph.D.

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Monument Economics Group
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Professional Summary

Russell Lamb is an expert in antitrust economics and has testified concerning antitrust liability, impact, and damages in U.S. District Court. He has an extensive background in applied econometrics and has developed econometric models to measure damages in a number of matters involving allegations of horizontal price fixing. He has provided expert testimony in State and Federal Courts in the United States and in Canada on a range of issues including class-certification and economic damages in antitrust, RICO and consumer fraud matters. In addition, he has provided expert advice to client attorneys at all levels of the litigation. Dr. Lamb has an extensive background in the analysis of domestic and international agricultural markets, and has authored more than 50 articles in peer-reviewed economics journals, trade press, and major newspapers.

Dr. Lamb's work has been cited by courts in certifying classes in the United States and Canada. For example, in *In re Aftermarket Automotive Lighting Products Antitrust Litigation*, the court held that his analysis provided "a sufficient basis from which to conclude that Plaintiffs would adduce common proof concerning the effect of Defendants' alleged price-fixing conspiracy on prices class members paid." In certifying the Class in *In re: Titanium Dioxide Antitrust Litigation*, the Court said, "This Court finds that Dr. Lamb's regression analysis accurately reflects the characteristics of the titanium dioxide industry, and the facts in this case." In the Canadian LCD Competition Act Class Action, the Court held that Dr. Lamb's analysis provided "evidence of a viable methodology for the determination of loss on a class-wide basis." In *In re: Puerto Rican Cabotage Litigation*, the

Court held that "Dr. Lamb [had] set forth a reputable and workable model for determining damages as to individual class members." In certifying the class in *Clarke and Rebecca Wixon, et al. v. Wyndham Resort Development Corp., et al.*, the Court held that "Dr. Lamb [had] presented a plausible class-wide method of proof." In certifying the class in *Eugene Allan, et al., v. Realcomp II, Ltd., et al.*, the Court held that "the Plaintiffs have produced sufficient evidence that common proofs will yield a finding of class-wide damages that predominates over any specific individualized damages. The Lamb Report and Lamb Reply are sufficient to establish this fact." Furthermore, Dr. Lamb was the Indirect Purchaser Plaintiffs' expert in the *In re: Polyurethane Foam Antitrust Litigation* matter, which was certified by the Court in April 2014.

With regard to agricultural economics, Dr. Lamb has a particular expertise in agricultural markets and has undertaken extensive original research and econometric analysis on markets for agricultural commodities. His articles on agricultural economics have been published in peer-reviewed journals, trade press, and major newspapers. Dr. Lamb regularly presents at conferences on topics including the state of the U.S. Economy and farm policy.

Prior to rejoining Nathan Associates, Dr. Lamb established the Arlington, VA office of Advanced Analytical Consulting Group where he served as a Principal, as well as the Washington, DC office of Econ One where he served as Managing Director and DC Office Head. In these positions, he developed and managed a practice of ten litigation professionals. He earlier served as an Assistant Professor of Agricultural Economics and faculty member of the Graduate Group in Economics at North Carolina State University and as an Economist and Senior Economist in the Federal Reserve System of the United States, at the Federal Reserve Board and the Federal Reserve Bank of Kansas City.

Education

- Ph.D., Economics, University of Pennsylvania, 1994
- M.A., Economics, The University of Maryland, 1989
- B.A., Economics, The University Tennessee, 1987

Expert Testimony Offered

2017 *In Re Namenda Direct Purchaser Antitrust Litigation*

- United States District Court Southern District of New York
- Case No. 1:15-CV-07488
- Expert Report, September 15, 2017
- Amended Expert Report, September 20, 2017
- Testified at deposition, October 6, 2017
- Opinion concerning class certification issues
- Retained by Berger & Montague, P.C. and Garwin Gerstein & Fisher LLP

In Re Capacitors Antitrust Litigation

- United States District Court Northern District of California San Francisco Division
- Case No. 3:14-CV-03264-JD
- Expert Declaration, February 24, 2017
- Expert Reply Declaration, April 28, 2017
- Testified at deposition, May 17, 2017
- Opinion concerning class certification issues regarding indirect purchasers
- Retained by Cotchett, Pitre & McCarthy, LLP

2016 *Deere Construction, LLC, v. Cemex Construction Materials Florida, LLC, et al.*

- United States District Court Southern District of Florida
- Case No. 15-24375-CIV-ALTONAGA/O'Sullivan
- Expert Report, September 14, 2016
- Testified at deposition, September 27, 2016
- Opinion concerning class certification issues
- Retained by Kozyak Tropin & Throckmorton, LLP; Harke Clasby & Bushman, LLP; and McCallum, Methvin & Terrell, P.C.

Luke Begonja v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2015-CA-010943)
Gerrit Brouwer, Jr., et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2014-CA-008533)
Gary Gottschalk, et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2015-CA-001957)
Susan Hatzipetro, et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2014-CA-007996)
Shelly Keegan, et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2015-CA-001953)
Yvonne Klebba, et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2014-CA-008535)
Adriane McConville, et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2015-CA-001960)
Ernest W. Yeager Jr., et al. v. Wyndham Vacation Resorts, Inc., et al. (Case No. 2014-CA-008054)

- In the Circuit Court of the Ninth Judicial Circuit in and for Orange County, Florida
- Expert Report, September 14, 2016
- Testified at deposition, October 27-28, 2016
- Testified at deposition, March 2-3, 2017
- Expert Report, May 19, 2017
- Testified at deposition, August 29, 2017
- Opinion concerning damages issues
- Retained by Badham & Buck, LLC

In Re: Evanston Northwestern Healthcare Corporation Antitrust Litigation

- United States District Court for the Northern District of Illinois Eastern Division
- No. 07-C-4446
- Expert Report, July 28, 2016
- Expert Reply Report, January 25, 2017
- Testified at deposition, September 20, 2016
- Testified at deposition, February 22, 2017
- Opinion concerning damages issues
- Retained by Miller Law LLC

In Re: Ductile Iron Pipe Fittings ("DIPF") Direct Purchaser Antitrust Litigation

- United States District Court for the District of New Jersey
- Civ. No. 12-711 (AET)(LHG)
- Declaration, May 27, 2016
- Reply Declaration, March 31, 2017
- Testified at deposition, July 8, 2016
- Opinion concerning class certification, merits, and damages issues
- Retained by Cohen Milstein Sellers & Toll PLLC and Kaplan Fox & Kilsheimer LLP

Nestlé Purina Petcare Company v. Blue Buffalo Company, Ltd.

Blue Buffalo Company, Ltd. v. Nestlé Purina Petcare Company, et al.

Blue Buffalo Company, Ltd. v. Wilbur-Ellis Company, et al.

Diversified Ingredients, Inc. v. Wilbur-Ellis Company, et al.

Diversified Ingredients, Inc. v. Custom AG Commodities, LLC, et al.

- United States District Court for the Eastern District of Missouri Eastern Division
- Cause No.: 4:14-CV-00859 RWS
- Affidavit, March 17, 2016
- Opinion concerning pricing issues
- Retained by Lashly & Baer, P.C.

In Re: Cast Iron Soil Pipe and Fittings Antitrust Litigation

- United States District Court Eastern District of Tennessee at Chattanooga
- Case No.: 1:14-md-2508
- Declaration, March 4, 2016
- Testified at deposition, May 19, 2016
- Opinion concerning class certification and damages issues
- Retained by Cohen Milstein Sellers & Toll PLLC, Cera LLP, and Kaplan Fox & Kilsheimer LLP

Darren Ewert v. Denso Corporation, et al.

- Supreme Court of British Columbia
- Case No. S-135610

- Expert Report, February 12, 2016
- Expert Reply Report, January 5, 2017
- Opinion concerning class certification issues
- Retained by Camp Fiorante Matthews Mogerman

Serge Asselin v. Hitachi, LTD & al.

- Cour Supérieure Disctirct de Québec
- Case No. 200-06-000180-144
- Expert Report, February 11, 2016
- Opinion concerning class certification issues
- Retained by Siskinds LLP

2015 *Thomas Mervyn v. Atlas Van Lines, Inc., et al.*

- United States District Court Northern District of Illinois Eastern Division
- Case No. 1:13-CV-03587
- Expert Declaration, September 3, 2015
- Expert Report, February 4, 2016
- Opinion concerning data issues
- Opinion concerning damages issues
- Retained by Miller Law LLC

Thomas Mervyn v. Nelson Westerberg, Inc.

- United States District Court Northern District of Illinois Eastern Division
- Case No. 1:11-CV-06594
- Expert Report, July 27, 2015
- Opinion concerning damages issues
- Retained by Miller Law LLC

Lane's Gifts and Collectibles, LLC v. Microsoft Online, Inc.

- United States District Court Western District of Washington at Seattle
- No. 2:12-cv-01181-BJR
- Expert Report, March 23, 2015
- Testified at deposition, May 21, 2015
- Opinion concerning damages issues
- Retained by Nix, Patterson & Roach, L.L.P. and Kessler Topaz Meltzer & Check, LLP

BlueCross BlueShield of Tennessee, Inc., et al. v. King Pharmaceuticals, Inc., et al.

- In the Circuit Court for Cocke County, Tennessee
- Civil Action No. 32941-II
- Expert Report, January 23, 2015
- Opinion concerning impact and damages issues
- Retained by Miller Law LLC

In Re: Domestic Drywall Antitrust Litigation

- United States District Court for the Eastern District of Pennsylvania
- MDL No. 2437 13-MD-2437
- Trial Expert Report, January 23, 2015
- Reply Expert Report, April 23, 2015
- Expert Report concerning class certification, August 3, 2016
- Expert Reply Report concerning class certification, January 9, 2017
- Testified at deposition, February 25, 2015
- Testified at deposition, August 30, 2016
- Testified at deposition, February 17, 2017
- Testified at class certification hearing, April 27, 2017
- Expert Supplemental Report, July 31, 2017
- Opinion concerning merits issues regarding direct purchasers
- Opinion concerning class certification issues, impact and damages regarding direct purchasers
- Retained by Cohen Milstein Sellers & Toll PLLC, Berger & Montague, P.C., and Spector Roseman Kodroff & Willis, P.C.

In Re: Processed Egg Products Antitrust Litigation

- United States District Court for the Eastern District of Pennsylvania
- MDL No. 2002
- Expert Declaration, January 22, 2015
- Expert Reply Declaration, April 3, 2015
- Testified at deposition, May 7, 2015
- Opinion concerning merits and damages issues regarding indirect purchasers
- Retained by Straus & Boies, LLP

2014 *In Re: Class 8 Transmission Indirect Purchaser Antitrust Litigation*

- United States District Court for the District of Delaware
- Civil Action No. 11-cv-00009 (SLR)
- Declaration, November 3, 2014
- Reply Declaration, March 6, 2015
- Trial Declaration, March 27, 2015
- Trial Reply Declaration, July 2, 2015
- Testified at deposition, December 17, 2014
- Testified at deposition, March 16, 2015
- Testified at class certification hearing, March 25, 2015
- Testified at deposition, May 1, 2015
- Opinion concerning class certification issues regarding indirect purchasers
- Opinion concerning merits and damages issues regarding indirect purchasers
- Retained by Glancy Binkow & Goldberg LLP

Mark S. Wallach, et al., v. Eaton Corporation, et al.

- United States District Court District of Delaware

- Civil Action No. 10-260-SLR
- Expert Report, November 3, 2014
- Expert Reply Report, March 6, 2015
- Trial Expert Report, March 27, 2015
- Trial Expert Reply Report, July 2, 2015
- Testified at deposition, December 16, 2014
- Testified at deposition, March 16, 2015
- Testified at class certification hearing, March 25, 2015
- Testified at deposition, May 1, 2015
- Opinion concerning class certification issues regarding direct purchasers
- Opinion concerning merits and damages issues regarding direct purchasers
- Retained by Cohen Milstein Sellers & Toll PLLC

Sheridan Chevrolet Cadillac Ltd., et al., v. Furukawa Electric Co. Ltd., et al.
Ontario Superior Court of Justice
Court File No. CV-12-446737-00CP

Sheridan Chevrolet Cadillac Ltd., et al., v. Mitsubishi Electric Corporation, et al.
Ontario Superior Court of Justice
Court File No. CV-14-496994-00CP

- Expert Report, April 15, 2016
- Expert Report, October 14, 2014
- Opinion concerning class certification issues
- Retained by Siskinds LLP

Resco Products, Inc., v. Bosai Minerals Group Co., Ltd., et al.

- United States District Court for the Western District of Pennsylvania
- Civil Action No.: 2:06-cv-325-JFC
- Expert Report, September 24, 2008
- Expert Report, September 29, 2014
- Supplemental Expert Report, December 15, 2014
- Testified at deposition, February 13, 2015
- Opinion concerning damages
- Retained by Boies, Schiller & Flexner LLP

Fond Du Lac Bumper Exchange Inc., et al. v. Jui Li Enterprise Company Ltd. et al.

- United States District Court Eastern District of Wisconsin
- Case No.: 2:09-cv-00852-LA
- Affidavit, August 1, 2014
- Affidavit, November 4, 2014
- Declaration, April 24, 2015
- Expert Report, July 15, 2015
- Expert Reply Report, November 24, 2015
- Expert Surreply Report, January 15, 2016
- Expert Trial Report, August 18, 2016
- Expert Trial Reply Report, December 20, 2016
- Testified at deposition, October 1, 2015
- Testified at deposition, February 13, 2017
- Opinion concerning class certification and damages issues
- Opinion concerning Defendants' replacement data
- Opinion concerning Defendant and LKQ transaction-level data
- Opinion concerning merits and damages issues
- Retained by Stueve Siegel Hanson, LLP

Meredith Corporation, et al., v. SESAC, LLC, et al.

- United States District Court for the Southern District of New York
- 09 Civ. 9177 (PAE)
- Expert Report, July 10, 2014
- Opinion concerning class certification issues
- Retained by Weil, Gotshal & Manges LLP

Janet Skold, et al., v. Intel Corporation, et al.

- Superior Court of the State of California for the County of Santa Clara
- Case No. 1-05-CV-039231
- Expert Report, June 14, 2007
- Testified at deposition, August 31, 2007
- Testified at deposition, January 10, 2014
- Opinion concerning class certification issues
- Opinion concerning damages issues
- Retained by Girard Gibbs LLP

In Re: Polyurethane Foam Antitrust Litigation

- United States District Court Northern District of Ohio Western Division
- MDL No. 2196
- Declaration, June 11, 2013
- Reply Declaration, October 23, 2013
- Trial Declaration, March 18, 2014
- Reply Trial Declaration, June 30, 2014
- Testified at deposition, August 20, 2013

- Testified at deposition, November 20, 2013
- Testified at class certification hearing, January 15, 2014
- Testified at deposition, April 14, 2014
- Testified at deposition, July 14, 2014
- Opinion concerning class certification issues regarding indirect purchasers
- Opinion concerning merits and damages issues
- Retained by Miller Law LLC

Professional Experience

Economic Consulting Positions

Monument Economics Group, October 11, 2016 - Present

Nathan Associates, Inc., Arlington, VA, *Senior Vice President*, January 2013 – September 20, 2016

Advanced Analytical Consulting Group, Inc., Washington DC area, *Principal*, March 2011 – January 2013

Econ One Research, Inc., Washington, DC, *Managing Director and D.C. Office Head*, July 2006 March 2011

- Opened and staffed the DC office; managed office affairs on a daily basis
- Retained as an expert witness for damages and class certification issues in antitrust, breach of contract, product liability and RICO cases; representative testimony includes determination of liability and damages in a case involving resale price maintenance in consumer products, class certification in a horizontal price-fixing case involving international travel in the airline industry, class certification in a consumer class action involving RICO claims in state court
- Industry pre-litigation analyses for consumer products, chemicals, and other industries

Navigant Consulting, Inc., Washington, DC, *Associate Director*, February 2006 – July 2006

- Case manager for damages analysis in asbestos litigation and personal injury claims

Nathan Associates, Inc., Arlington, VA, *Managing Economist*, July 2004 – February 2006

- Case manager for economic analysis of class certification and damages issues in antitrust and RICO cases involving the chemical, consumer products and tobacco industries
- Retained as expert on damages for direct purchasers of NBR in the Crompton Global Settlement; submitted an Affidavit on damages and appeared before the Special Master for the Crompton Global Settlement (the Hon. Kenneth Feinberg)

Board Membership

- Board of Advisors, American Antitrust Institute, Washington, DC

- Department of Economics Advisory Council, University of Tennessee, Knoxville, *Chairman*, Spring 2006 – April 2011

Teaching Positions

- The George Washington University, Washington, DC, *Adjunct Assistant Professor of Economics*, Fall 2004 – present
- North Carolina State University (NCSU), *Assistant Professor* (Department of Agricultural and Resource Economics), Fall 1999 – Spring 2004
- The University of Pennsylvania, *Adjunct Instructor*, Summer 1990 – Spring 1994

Additional Teaching Experience

- The Wharton School Evening Division, Philadelphia, PA, summer 1993
- Rutgers University, Camden, NJ, summer 1993
- Philadelphia College of Textiles and Science, Philadelphia, PA, fall 1992
- The Pennsylvania State University, Media, PA, 1991
- St. Mary's College of Maryland, St. Mary's City, MD, summer 1989
- The University of Maryland University College, College Park, MD, 1988-1989

Courses Taught

- Managerial Economics for MBA students (George Washington University)
- Law and Economics (George Washington University)
- Intermediate Microeconomics – graduate level (George Washington University)
- Latin American Economic Development (George Washington University)
- International Trade: Theory and Policy (George Washington University)
- International Finance: Theory and Policy (George Washington University)
- Agricultural Production and Supply – Ph.D. field course (North Carolina State University)
- U.S. Agricultural Policy (North Carolina State University)
- Microfinance: Theory, Practice and Regulation (Superintendencia de Banca y Seguros)
- Statistical Analysis for Economics (University of Pennsylvania)
- Principles of Microeconomics (University of Maryland, St. Mary's College of Maryland)
- Principles of Macroeconomics (University of Pennsylvania, The Wharton School, Penn State University)
- Fundamentals of Micro/Macro Economics (University of Maryland)
- Environmental and Natural Resource Economics (Rutgers)

Federal Reserve Experience

Federal Reserve Bank of Kansas City, *Senior Economist* (Jan. 1998 – Aug. 1999), *Economist* (Jan. – Dec. 1997)

- Analysis of regional, macroeconomic developments in agriculture, and energy
- Research on public policy towards agriculture in the U.S., especially the impact of farm policy reform
- Briefings to the Bank president and outside groups on the regional economy, agriculture, agricultural trade

Board of Governors of the Federal Reserve System, *Economist*, June 1994 – Dec. 1996

- Analysis of macroeconomic conditions, commodity markets and prices (CPI, PPI, Core prices)
- Forecasting of agricultural output, prices, and income
- Briefings to the Board of Governors on agriculture and food-price developments

Other Consulting Experience

World Perspectives, Inc., 2003 - 2004

- Analysis of trade barriers for U.S. exports of feed ingredients, pet food ingredients, and food ingredients
- Analysis of the impact of a Free Trade Area of the Americas on U.S. soybean producers
- Analysis of the potential for U.S. Halal-certified meat exports to the Middle East

Womble Carlyle Sandridge & Rice, LLP, 2003 - 2004

- Provided expert testimony related to the estimation of business profitability

Smith-Moore, 2002 - 2003

- Provided economic analysis of the U.S. Tobacco Program

Superintendencia de Banca y Seguros (Lima, Peru), 1998 - 2000

- Developed and taught a class on Microfinance issues (in English) to students enrolled in a training program for bank examiners; the program was sponsored by the Inter-American Development Bank.

World Bank, Africa Technical Department, 1992 – 1993

- Summarized and provided an overview of data available on African economic and social indicators

ACG-Afrique, January 1993

- Provided critical review of a study document outlining the impact of structural adjustment on African agriculture

Professional Organizations

- National Association for Business Economics
- American Economic Association

Papers, Publications and Speeches

Papers Published in Refereed Journals

- "Government Regulation and Quality in the U.S. Beef Market," (with Peyton Ferrier) *Food Policy*, 32:1 (2006) pp. 84-97
- "Rent-seeking in U.S.-Mexican Avocado Trade," *Cato Journal*, 26:1 (Winter 2006) pp. 159-177
- "Consolidation in U.S. Agriculture and the Role of Public Policy," *The ICFAI Journal of Agricultural Economics*, 1(2004) pp. 7-16
- "Fertilizer Use, Risk, and Off-farm Labor Markets in the Semi-Arid Tropics of India," *American Journal of Agricultural Economics*, 85(2) (May 2003) pp 359-371
- "Inverse Productivity: Land Quality, Labor Markets, and Measurement Error," *Journal of Development Economics*, 71 (2003) pp. 71-95
- "A Market-Forces Policy for the New Farm Economy?" *Review of Agricultural Economics*, 24 (2002) 15-30
- "Food Crops, Exports, and the Short-run Policy Response of Agriculture in Africa," *Agricultural Economics*, 22 (2000) 271-298
- "FAIR Act Implications for Land Values in the Corn Belt," (with Jason Henderson) *Review of Agricultural Economics*, 22 (2000) 102-119
- "Why are Estimates of Agricultural Supply Response So Variable?" (with Francis X. Diebold) *Journal of Econometrics*, 76 (1997) 367-373

Non-refereed Publications, Articles and Editorials

- "The Predominance Requirement for Antitrust Class Actions – Can Relevant Market Analysis Help?" (with Jeffrey Leitzinger) American Bar Association – Section of Antitrust Law, *Economics Committee Newsletter*, Spring 2007, pp. 17-22
- "Reform of U.S. Farm Policy in an Integrating World Economy," forthcoming in *Developing Countries in the WTO System*, published by Rowman & Littlefield, 2006
- "New Farm Economy," *Regulation*, Winter 2003-2004, Washington, DC: Cato Institute for Public Policy Research (2003)
- "What Road Will U.S. Economy Take in 2003?" *Southeast Farm Press*, February 5, 2003
- "Fast Track for the Tax Cuts," guest editorial, *News and Observer* (Raleigh, NC), January 18, 2003
- "The 2002 Farm Bill," (with Blake Brown and Michele Marra) *NC State Economist*, November/December 2002

- "Economy-minded Tax Cuts: Bush's Reductions Provided the Boost to Lift U.S. From Recession," guest editorial, *News and Observer* (Raleigh, NC), July 2, 2002
- "Policy Only Effective if Farm Economy is Recognized," special report to *Feedstuffs*, June 5, 2000
- "Aid During Crisis of Little Long-term Help to Farmers," guest editorial, *Kansas City Star*, August 23, 1999
- "Survey of Agricultural Credit Conditions," Federal Reserve Bank of Kansas City, *Regional Economic Digest*, various issues, 1997-1999
- "U.S. Agriculture at the Crossroads in 1999," *Economic Review*, Federal Reserve Bank of Kansas City, 84 (1999)
- "Can U.S. Oil Production Survive the 20th Century?" *Economic Review*, Federal Reserve Bank of Kansas City, 84 (1999)
- "Will the Tenth District Catch the Asian Flu?" (with Ricardo Gazel) *Economic Review*, Federal Reserve Bank of Kansas City, 83 (1998)
- "From the Plains to the Plate: Can the Beef Industry Regain Market Share?" (with Michelle Beshear) *Economic Review*, Federal Reserve Bank of Kansas City, 83 (1998)
- "U.S. Agriculture: Another Solid Year in 1998?" (with Mark Drabenstott) *Economic Review*, Federal Reserve Bank of Kansas City, 83 (1998)
- "How Will the 1996 Farm Bill Affect the Outlook for District Farmland Values?" *Economic Review*, Federal Reserve Bank of Kansas City, 82 (1997).
- "Food Prices and the Farm Sector," monthly *Greenbook* (various issues, 1994-1996), Federal Reserve Board of Governors, Washington, DC
- "Hedge to Arrive Contracts," Memo to the Board of Governors, Federal Reserve Board of Governors, Washington, DC, June 5, 1996
- "Prices in the May Greenbook," Federal Reserve Board of Governors, Washington, DC, May 19, 1996
- "Prices in the March Greenbook," Federal Reserve Board of Governors, Washington, DC, March 24, 1996
- "Commodity Price Developments," Weekly memo to the Board of Governors, Federal Reserve Board of Governors, Washington, DC, August 1994 – December 1996

Conference Presentations

- "Class Action Developments," panelist at the American Antitrust Institute's 6th Annual Private Antitrust Enforcement Conference, Washington, DC, December 4, 2012
- "Consequences for Antitrust Thought and Practice," presented at the American Antitrust Institute Invitational Symposium: Antitrust Challenge of Multi-Channel Distribution in the Internet Age, Washington, DC, June 22, 2011
- "The U.S. Economy in the Year Ahead," presented at the Long Company Annual Conference, Chicago, IL, September 11, 2009 and September 19, 2008

- "The U.S. Economic Outlook," presented at the Industry Outlook Conference, Chicago, IL, October 17, 2006 and October 18, 2005
- "How Will the Economy Impact Your Business?" presented at the Long Company Annual Conference, Las Vegas, NV, August 14, 2004
- "Focus on The Economy" presented at *Milling and Baking News* annual Purchasing Managers' Conference, Kansas City, MO, June 14, 2004, June 10, 2003 and June 11, 2002
- "The U.S. Economic Outlook and Agriculture," presented at the Industry Outlook Conference, Chicago, IL, October, 2003
- "The U.S. Economic Outlook and Agriculture," presented at the Industry Outlook Conference, Breckenridge, CO, April 7, 2002
- "The U.S. Economic Outlook: The Cost of Terror," presented at the Southern Agricultural Outlook Conference, Atlanta, GA, September 24, 2001
- "The Economy in Focus," presented at *Milling and Baking News* annual purchasing managers' conference, Kansas City, MO, June 5, 2001
- "The Great American Growth Machine," presented at the Southern Agricultural Outlook Conference, Atlanta GA, September 27, 2000
- "The Economy in Focus," presented at *Milling and Baking News* annual purchasing managers' conference, Kansas City, MO, June 6, 2000
- "The Outlook for the U.S. Pork Sector," presented to the Industry Outlook Conference, Las Vegas, NV, April 17, 2000
- "The National Economic Outlook: The Road Ahead," presented to the Food Industry Outlook Conference, Breckenridge, CO, April 11, 1999
- "Farm Policy for the New Millennium," presented to Federal Reserve Bank of Kansas City, Division of Bank Supervision and Regulation, Bank Examiners' Annual Training Conference, January 7, 1999
- "The Impact of the 1996 Farm Bill on Farmland Values," (with Jason Henderson) first place poster presentation at the annual meetings of the American Agricultural Economics Association, Salt Lake City, August 4, 1998
- "A Note on the Inverse Productivity Relationship," presented at the annual meetings of the Western Economic Association International, Seattle, July 1997
- "Off-farm Labor Supply and Fertilizer Use in the Semi-Arid Tropics of India," presented at the annual meetings of the American Agricultural Economics Association, August 1995
- "Prices for Food-Away-From-Home and Core Inflation: Some Empirical Relationships," (with James E. Kennedy) presented at the Federal Reserve System Committee on Agriculture, Richmond, VA, October 1995
- "Some Simple Dynamics of Farming," presented at the annual meetings of the American Agricultural Economics Association, Orlando, August 1993

- "Structural Adjustment and Food Security," (with W. Graeme Donovan), presented at the annual meetings of the American Agricultural Economics Association, Orlando, August 1993
- "Structural Adjustment and African Agricultural Supply Response to Exchange Rate and Price Movements," (with W. Graeme Donovan), presented at the annual meetings of the Southern Agricultural Economics Association, Tulsa, January 1993

Other Presentations

- Panelist, "Antitrust Class Actions – Where Are We? A 360 Degree Perspective," NYSBA Annual Antitrust Law Section Meeting," January 30, 2014
- Panelist, Retrospective on the Baby Products Litigation, ABA Section of Antitrust Law: Pricing Conduct Committee, July 31, 2013
- Panelist, Economic Forecasting Summit, Northern Indiana Workforce Investment Board, Inc., March 29, 2007
- "The Welfare Benefits of USDA Beef Quality Certification Programs" (with Peyton Ferrier), presentation memo, 2007
- "Reform of U.S. Farm Policy in an Integrating World Economy," presented to the Cordell Hull Institute, Trade Policy Roundtable on Reform of U.S. Farm Policy and the WTO System, Washington, DC, March 31, 2006
- "The Case for a Market-forces Farm Policy in the U.S." presented at the Cordell Hull Institute Trade Policy Roundtable, Washington DC, May 26, 2005
- "How Will the Economy Impact Your Business?" presented at the Apple Processors Association annual meeting, Homewood Resort, June 20, 2004
- "The U.S. and International Economic Outlook," presented at the AgFirst Loan Officer's Seminar, Atlanta, GA, October 30-31, 2002
- "Will the U.S. Economy Bounce or Crawl?" presented to the Eastern Bankruptcy Institute, North Myrtle Beach, SC, June 1, 2002
- "The U.S. Economic Outlook and Agriculture," presented to the National Pork Producers Pork Action Group, Washington, DC, April 10, 2002
- "The U.S. Economic Outlook" presented to the Risk Management Associates, Raleigh, NC, February 7, 2002
- "The U.S. Economic Outlook: The Cost of Terror," presented at the National Pork Producers Pork Action Group, Marco Island, FL, November 14, 2001
- "Consolidation in Agriculture and the Role of Public Policy," paper presented to the Southern Extension Meetings, Williamsburg, VA, June 13, 2000
- "The New Farm Economy," presented at the annual meetings of the National Association of County Agricultural Agents, Omaha, NE, September 14, 1999

- "Regional Economic Update," presented to bankers in Kansas, Nebraska, Missouri, and Oklahoma as part of the Regulatory Update Seminar, Federal Reserve Bank of Kansas City, April 1999
- "The National Economic Outlook," presented to Oklahoma State University Advanced Cattle Management Seminar, Stillwater, OK, March 11, 1999
- "Regional Economic Update," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, November 13, 1998
- "Can the Tenth District Survive the Asian Flu?" The Federal Reserve Bank of Kansas City Economic Forums, nine presentations to bankers in Wyoming, Oklahoma, and New Mexico, September 21 - October 21, 1998
- "The Impact of Asian Economic Developments on Tenth District Agriculture," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, January 30, 1998
- "The Outlook for the Nebraska Economy," The Federal Reserve Bank of Kansas City: Nebraska Economic Forums, six presentations to bankers in Nebraska, October 6 - 15, 1997
- "Update on the Macroeconomy and Special Briefing on Forecast Performance at the Kansas City Fed," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, August 13, 1997
- "Regional Economic Update," presented to Thomas Hoenig, President, Federal Reserve Bank of Kansas City, May 14, 1997 and March 21, 1997
- "Producer Prices, Retail Sales, and Agricultural Commodity Markets," presented to the Board of Governors of the Federal Reserve System, July 15, 1996

Referee Experience

Referee for the following academic journals:

- World Development, 1993
- Journal of Development Economics, 1994, 1995
- International Economic Review, 1995
- Journal of Human Resources, 1997
- Journal of Business and Economics Statistics, 1997
- American Journal of Agricultural Economics, 1999, 2001, 2002
- Agricultural Economics, 2000, 2001, 2004
- Agricultural Finance Review, 2000, 2004
- Review of Agricultural Economics, 2000, 2002, 2004
- Journal of Agricultural and Resource Economics, 2000, 2001, 2002
- Emerging Markets Review, 2001
- Contemporary Economic Policy, 2004

Fellowships, Honors and Awards

Fellowships

- Departmental Fellowship, University of Pennsylvania, 1989-1990
- Dean's Fellowship, University of Pennsylvania, 1991-1992
- Graduate School Fellowship, University of Maryland, College Park, 1987-1989

Honor Societies and Professional Organizations

- Phi Eta Sigma National Honor Society
- Mortar Board National Honor Society
- Golden Key National Honor Society
- Vice President for Professional Activities, Delta Sigma Pi

Awards

- Top Graduate in Liberal Arts, University of Tennessee, Knoxville, Spring 1987
- Chancellor's Citation for Extraordinary Professional Promise, University of Tennessee, Knoxville
- Chancellor's Citation for Outstanding Academic Achievement, University of Tennessee, Knoxville
- First place poster presentation, American Agricultural Economics Association annual meetings, August 1998 (with Jason Henderson)
- Honorable mention, American Agricultural Economics Association, Essay for the 21st Century, 2001, "A Market Forces Policy for the New Farm Economy"
- Honorable mention, American Antitrust Institute Antitrust Enforcement Awards, Outstanding Antitrust Litigation Achievement in Economics (for work on In Re Titanium Dioxide Antitrust Litigation matter)

External Funding

- "Unmanufactured Flue-Cured Tobacco Exports and the Export Component of the Quota Formula." \$13,890 NC Tobacco Foundation. With Blake Brown 2000/2001.

Professional Activities and Services

Graduate Student Advising

M.A. degree, North Carolina State University

- Joe Weinberg (Political Science)

Master of Economics, North Carolina State University

- William Pole (2000)
- Dwight Wilder (Chairman, 2002)
- Adrian Atkeson (2002)
- Sarah Spivey

- Li Zhang (Chairman, 2003)
- Nia Atmadja (2003)

Doctor of Philosophy, North Carolina State University

- William Deese (2003)
- Peyton Ferrier (Chairman, 2004)
- Yang Wang (2003)
- Bobby Huggett (2003)
- Syed Wadood (Chairman, 2004)
- Henry Kuo

Economic and Statistical Modeling Skills

- Experience with all major statistical software including SAS, STATA, LIMDEP and C++; applied econometric modeling skills in damage analysis of consumer industries, chemicals industries, and agricultural markets, correlation analysis for class certification.

Appendix B

Materials Considered

All materials listed in Appendix B of United States District Court for the Southern District of New York, *In re: Namenda Direct Purchaser Antitrust Litigation*, Civil Action No. 1:15-cv-07488, Amended Expert Report, September 20, 2017

Pleadings and Legal Correspondence

United States Court of Appeals for the Second Circuit, *People of the State of New York, by and through Eric T. Schneiderman, Attorney General of the State of New York v. Actavis and Forest Laboratories*, Decided May 22, 2015

United States Court of Appeals for the Second Circuit, *State of New York v. Actavis and Forest Laboratories*, Reply Brief of Defendants-Appellants (Redacted), February 23, 2015

United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Case No. 1:15-CV-07488-CM-JCF, Memorandum of Law in Support of Direct Purchaser Class Plaintiffs' Motion for Class Certification, September 28, 2017

United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Civil Action No. 1:15-cv-07488, Amended Expert Report, September 20, 2017

United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Civil Action No. 1:15-cv-07488, Expert Report, September 15, 2017

United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Civil Action No. 1:15-cv-07488-CM-JCF, Expert Report of Lona Fowdur, Ph.D., October 9, 2017

United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Civil Action No. 1:15-cv-07488, Expert Report of Pierre-Yves Cremieux, October 9, 2017

United States District Court for the Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Civil Action No. 1:15-cv-07488, Expert Report of Ernst R. Berndt, Ph.S., October 25, 2017

United States District Court Southern District of New York, *In Re Namenda Direct Purchaser Antitrust Litigation*, Memorandum Decision and Order Granting in Part and Denying in Part Plaintiffs' Motion for Collateral Estoppel and Partial Summary Judgment on Count One; Denying Plaintiffs' and Defendants' Motions for Partial Summary Judgment on Count Five, May 23, 2017

Depositions and Declarations

30(b)(6) Deposition of Mark Devlin, dated August 29, 2017

Declaration of Julie Snyder, dated Oct. 6, 2017

Deposition and Exhibit of Lona Fowdur, dated October 20, 2017

Deposition and Exhibits of 30(b)(6) Deposition of Julie Snyder, dated October 11, 2017

Deposition and Exhibits of Pierre-Yves Cremieux, dated October 20, 2017

Deposition of Bob Lahman, dated July 14, 2017

Deposition of Russell Lamb, October 6, 2017
 Mark Devlin Investigation Hearing, dated August 21, 2014
 William Meury Investigational Hearing, July 10, 2014

Bates-Stamped Materials

Documents

FRX-AT-00948025	FRX-AT-01782799-2812	FRX-AT-03794674
FRX-AT-00951656-1668	FRX-AT-01827979-980	FRX-AT-03812473-74
FRX-AT-01594102-03	FRX-AT-01902458	FRX-AT-03860763-64
FRX-AT-01599602-618	FRX-AT-03598502-09	FRX-AT-03864752-4815
FRX-AT-01604908	FRX-AT-03670529-532	FRX-AT-03865799-818
FRX-AT-01610895-96	FRX-AT-03670602	FRX-AT-03983932-35
FRX-AT-01630867-888	FRX-AT-03670602-05	FRX-AT-04195587-598
FRX-AT-01647251-65	FRX-AT-03670742-45	FRX-AT-04225926-2
FRX-AT-01655281	FRX-AT-03684464-66	FRX-AT-04287221-22
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FRX-AT-01775242	FRX-AT-03724248	LPI-NMDA-00000001
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FRX-AT-01775264-5301	FRX-AT-03745344-46	ORGENUS0005405
FRX-AT-01775350-51	FRX-AT-03749306-07	SUN0010760

Third Party Materials

Analyst Reports/Market Research

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 Bloomberg Transcript of Forest's Q3 2014 Earnings Call, January 21, 2014
 Bloomberg Transcript of Forest's Q4 2013 Earnings Call, April 23, 2013
 Bloomberg Transcript of Forest's Q4 2014 Earnings Call, April 29, 2014
 Bloomberg Transcript, Goldman Sachs CEO Unscripted Health Care Conference, Section, January 6, 2015
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 J.P. Morgan, "Actavis plc: Namenda IR Injunction Only A Modest Setback – ALERT," December 12, 2014
 J.P. Morgan, "Forest Laboratories, Inc.: Raising Estimates On Lower Opex Assumptions; Shares Well Positioned Into Strategic Update," October 22, 2013
 J.P. Morgan, "Forest Laboratories, Inc: Takeaways from F1Q Conference Call – ALERT," July 22, 2013
 Q1 2014 Forest Laboratories, Inc. Earnings Conference Call – Final, July 23, 2013

Government Agency Publications

Alison Masson and Robert L. Steiner, "Generic Substitution and Prescription Drug Prices: Economic Effects of State Drug Product Selection Law," Federal Trade Commission, 1985

Bureau of Consumer Protection, "Drug Product Selection," Staff Report to the Federal Trade Commission, January 1979

FDA, "Generic Competition and Drug Prices," May 13, 2015. Available at <http://www.fda.gov/AboutFDA/CentersOffices/OfficeofMedicalProductsandTobacco/CDER/ucm129385.htm>.

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Arthur S. Goldberger, *A Course in Econometrics*, Cambridge, MA: Harvard University press, 1999

Dimitrios Asteriou and Stephen G. Hall, *Applied Econometrics a Modern Approach*, Revised Edition, New York, NY: Palgrave MacMillan, 2007

Ernst Berndt, Richard Mortimer, Ashoke Bhattacharjya, Andrew Parece and Edward Tuttle, "Authorized Generic Drugs, Price Competition, and Consumer's Welfare," *Health Affairs*, Vol. 26, No. 3, 2007 at pp. 790-799.

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